

MAQTQGTRRKVCYYDGDVGNYYYGQGHPMKPHRIRMTNLLLN
YGLYRKMEIYRPHKANAEEMTKYHSDDYIKFLRSIRPDNMSEYSKQMQRFNVEDCPV
FDGLFEFCQLSTGGSVASAVKLNKQQTDIAVNWAGGLHHAKKSEASGFCYVNDIVLAI
LELLKYHQRVLYIDIDIHHGDGVEEAFYTTDRVMTVSFHKYGEYFPGTGDLRDIGAGK
GKYAVYPLRDGIDDESIEAIFKPVMSKVMEMFQPSAVVLQCGSDSLSGDRLGCFNL
TIKGHAKCVEFVKSFNLPMLMLGGGYTIRNVARCWTYETAVALDTEIPNELPYNDYF
EYFGPDFKLHISPSNMTNQNTNEYLEKIKQRLFENLRMLPHAPGVQMQAIPEDAIPEE
SGDEDEDDPKRISICSSDKRIACEEEFSDSEEEGEGGRKNSSNFKKAKRVKTEDEKE
KDPEEKKEVTEEEKTKEEKPEAKGVKEEVKLA (SEQ ID NO:1)

FIG. 1A

34

1 atgtctggg tctctgccg ctggtgctgc tgttcccac tcggtcatcc tgagaacaca
61 gcctgagcgr ctctgtcact cggggtagac cacgcgggga ggcgagcaag atggcgcaga
121 cgcagggcac ccgaggaata gtctgttact actacgacgg gactgttgga aattactatt
181 atggacaagg ccacccaatg aagcctcacc gaatccgcat gactcataat ttgctgctca
241 actatggtct ctaccgaaa atggaatct atcgccctca caaagccaat gctgaggaga
301 tgaccaagta ccacagcag gactacatta aattcttgcg ctccatccgt ccagataaca
361 tgtcggagta cagcaagcag atgcagagat tcaacgttgg tgaggactgt ccagtattcg
421 atggcctgtt tgagtctgt cagttgtcta ctggtggttc tgtggcaagt gctgtgaaac
481 ttaataagca gcagacggac atcgccgtga attgggctgg gggcctgcac catgcaaaga
541 agtccgagc atctggcttc tgttacgtca atgatatcgt ctgggcatc ctggaactgc
601 taaagtatca ccagaggggtg ctgtacattg acattgatat tcaccatggt gacggcgtgg
661 aagaggcctt ctacaccag gaccgggtca tgactgtgtc ctttcataag tatggagagt
721 acttcccagg aactggggac ctacgggata ccggggctgg caaagacaag tattatgctg
781 ttaactacc gctccgagac gggattgatg acgagtccta tgaggccatt ttcaagccgg
841 tcatgtccaa agtaatggag atgttccagc ctagtgcggt tctcttacag tgtggctcag
901 actccctatc tggggatcgg ttaggttgct tcaatctatc tatcaaggga caccgcaagt
961 gtgtggaatt tgtcaagagc tttaacctgc ctatgctgat gctgggaggc ggtggttaca
1021 ccattcgtaa cgttgcccgg tgctggacat atgagacagc tgtggccctg gatacggaga
1081 tccctaata gcttccatac aatgactact ttgaatactt tggaccagat ttcaagctcc
1141 acatcagtcc ttccaatatg actaaccaga acacgaatga gtacctggag aagatcaaac
1201 agcgactgtt tgagaacctt agaatgctgc cgcacgcacc tggggtccaa acgcaggcga
1261 ttcctgagga cgccatccct gaggagagtg gcgatgagga cgaagacgac cctgacaagc
1321 gcatctcgat ctgctcctct gacaaacgaa ttgcctgtga ggaagagtc tccgattctg
1381 aagaggagg agaggggggc cgcaagaact ctccaactt caaaaaagcc aagagagtca
1441 aaacagagga tgaaaaagag aaagaccag aggaagaaga aggaatcacc gaagaggaga
1501 aaaccaagga ggagaagcca gaagccaaag ggttcaagga ggaggccaag ttggcctgaa
1561 tggacctctc cagctctggc ttcctgctga gtccctcacg tttctttccc c (SEQ ID NO:2)

FIG. 1B

MAYSQGGKKCKVCYYDGDIGNYYYGQGHMPKPHRIRMTNLLL
NYGLYRKMEIYRPHKATAEEMTKYHSDEYIKFLRSIRPDNMSEYSKQMHIPFNVGEDCP
AFDGLFEFCQLSTGGSVAGAVKLNRRQQTDMAVNWAGGLHHAKKYEASGFCYVNDIVLA
ILLELLKYHQRVLYIDIDIHHRGDGVEEAFYTTDRVMTVSFYGEYFPGTGLRDIGAG
KGKYAVNFPMCDGIDDESYGQIFKPIISKVMEYQPSAVVLQCGADSLSGDRLGCFN
LTVKGHAKCVEVVKTFNLPLMLGGGGYTI LRNVARCWTYETAVALDCEIPNELPYNDY
FEYFGPDFKLHISPSNMTNQNTPEYMEKIKQRLFENLRMLPHAPGVQMQAIPEDAVHE
DSGDEGEDPDKRISIRASDKRIACDEEFSDSEDEGEGRNVADHKKGAKARIEED
KKETEDKKTDVKEEDKSKDNSGEKTDTKGTKSEQLSNP (SEQ ID NO:3)

FIG. 2A

1 cgccgagctt tcggcacctc tgccgggtgg taccgagcct tccggcgcc cctcctctc
61 ctcccaccgg cctgcccctc ccgcggggac tatcgccccc acgtttccct cagcccttt
121 ctctcccggc cgagccgagg cggcagcagc agcagcagca gcagcaggag gaggagccc
181 gtggcgggcg tggccgggga gcccatggcg tacagtcaag gaggcggcaa gaaaaagtc
241 tgctactact acgacgggtga tattggaat tattattatg gacaggggtca tcccatgaag
301 cctcatagaa tccgcatgac ccataacttg ccataactg ccataactga cagaaaaatg
361 gaaatatata gggcccataa agccactgcc gaagaaatga caaatatca cagtgatgag
421 tatatcaaat ttctacggtc aataagacca gataacatgt ctgagtatag taagcagatg
481 catatattta atgttggaga agattgtcca gcgtttgatg gactctttga gttttgtcag
541 ctctcaactg ggggttcagt tgctggagct gtgaagttaa accgacaaca gactgatag
601 gctgttaatt gggctggagg attacatcat gctaagaaat acgaagcatc aggatcctgt
661 tacgttaatg atattgtgct tgccatcctt gaattactaa agtatcatca gagagtctta
721 tatatcgata tagatatcca tcatggtgat ggtgtcgaag aagcttttta tacaacagat
781 cgtgtaatga cggtatcatt ccataaatat ccataaatat ggggaatact ttcctggcac
841 agggatatgg gtgctggaaa aggcaaatat gcagatatat aagcctatta tctcaaagg
901 atagacgatg agtcatatgg gtcctgtggt attacagtggt gctaaatgtg cattatctgg
961 tatcaacctc ggttgtttca atctaacagt atctaacagt caaagggtcat tccgtaatgt
1021 ggttgtttca aacttaccat tactgatgct tggaggagggt ggctacacaa tccgtaatgt
1081 tggacatatg agactgcagt agtattttgg accagacttc aaactgcata ttagtccttc
1141 gattactttg aaccagaaca ctccagaata tacggaaaag ataaaacagc gtttgtttga
1201 atgttacctc atgcacctgg agaatctca agaagtggag gattctgagg atgaaggaga
1261 gacagtggag ctgtgtgatga gaaaggagca gaagaaagcta aatccaagga caacagtgg
1321 atgttacctc atgcacctgg agaatctca agaagtggag gattctgagg atgaaggaga
1381 gacagtggag ctgtgtgatga gaaaggagca gaagaaagcta aatccaagga caacagtgg
1441 aagcggatag ctgtgtgatga gaaaggagca gaagaaagcta aatccaagga caacagtgg
1501 agaaatgtgg acaaaaaaac ataccaaaag ttcagaaaat ggcttcattt
1561 gaaacagagg gaaacagagg ataccaaaag ttcagaaaat ggcttcattt
1621 gaaacagagg gaaacagagg ataccaaaag ttcagaaaat ggcttcattt
1681 tctcaccaat ttcagaaaat ggcttcattt ttttgtttt tctccaccat
1741 gaagacttct ttcagaaaat ggcttcattt ttttgtttt tctccaccat
1801 actttttcgt ttttgtttt tctccaccat ttttgtttt tctccaccat
1861 aaattttctt ttttgtttt tctccaccat ttttgtttt tctccaccat
1921 gtcaaaaaaa ctgatctatt aaagaagtaa ttggcctttc
1981 aaaag (SEQ ID NO:4) tgagctgaaa

FIG. 2B

MAKTVAYFYDPDVGNFHYGAGHPMKPHRLALTHSLVLHYGLYKK
MIVFKPYQASQHDMCRFHSEDYIDFLQRVSPTNMQFTKSLNAPNVGDDCPVFPGLFE
FCSRYTGASLQGATQLNNKICDIANWAGGLHHAKKFEASGFCYVNDIVIGILELLKY
HPRVLYIDIDIHHGDGVQEA FYLTDRVMTVSFHKYGN YFFPGTDMYEVGAESGRYYC
LNVPLRGIDDQSYKHLFQPVINQVDFYQPTCIVLQCGADSLGCDRLGCNLSIRGH
CECVEYVKSFNI PPLLVLGGGYTVRNVARCWTYETSLLVEEAISEELPYSEYFEYFAP
DFTLHPDVSTRIENQSRQYLDQIRQTIFENLKMNLNHA PSVQIHDVPADLLTYDRTDE
ADAEERGPEENYSRPEAPNEFYDGDHDNDKESDVEI (SEQ ID NO: 5)

FIG. 3A

1 ggaattcgcg gccgcggcgg gcgcgggagg tgcgggggcct gctcccgccg gcaccatggc
61 caagaccgtg gcctatttct acgaccccca cgtggggcaac ttccactacg gagctggaca
121 ccctatgaag ccccatcgcc tggcattgac ccatagcctg gtcctgcatt acggtctcta
181 taagaagatg atcgtcctca agccatacca ggcctcccaa catgacatgt gccgcttcca
241 ctccgaggac tacattgact tcctgcagag agtcagcccc agtcaatatgc aaggcttcac
301 caagagtctt aatgccttca acgtaggcga tgactgcca gcaaggagca acccagctga acaacaagat
361 gtcttgctcg cgttacacag gcgcattctt ggcattcctg tctgcaccat gccaagaagt ttgaggcctc
421 ctgtgatatt gccattaaact ggcctggtgg acattgtgat tggcatcctg gagctgctca agtaccacc
481 tggcttctgc tatgtcaacg acattgtgat tggcatcctg tggcatcctg gagctgctca agtaccacc
541 tcgggtgctc cgggtcatga cgggtgcctt ttgacatcca ccatggtgac caacaatac gaggttcaag ggggttcaag
601 cctcactgac cgttgatga atgtatgaag tcggggcaga accagagtta caagcacctt gagtggccgc tactactgtc
661 cacaggtgac cctgcgggat ggcattgatg accagagtta caagcacctt gagtggccgc tactactgtc
721 cctgcgggat ggcattgatg accagagtta caagcacctt gagtggccgc tactactgtc
781 ggtagtggac ctgtgacga ttgtaccaac ttgggctgct ttaacctcag catccgaggg gctgggtggt gaagaggcca
841 ctgtgacga ctgtgacga ttgtaccaac ttgggctgct ttaacctcag catccgaggg gctgggtggt gaagaggcca
901 tgtcaagagc tgttgcccg cgttgcccg atgagacatc ctctactcgt gctgggtggt gctgggtggt gaagaggcca
961 tgttgcccg cgttgcccg atgagacatc ctctactcgt gctgggtggt gctgggtggt gctgggtggt gaagaggcca
1021 gcttgcccg cgttgcccg atgagacatc ctctactcgt gctgggtggt gctgggtggt gctgggtggt gaagaggcca
1081 cagcaccgc atcgagaatc agaatcagc agaatcagc agaatcagc agaatcagc agaatcagc agaatcagc
1141 ctttgaaaac ctgaagatgc acctacgaca agccagaggt gtggagatgt ggcagacatg acgtgcctgc
1201 agacctcctg gaactatagc gaactatagc gaactatagc gaactatagc gaactatagc gaactatagc gaactatagc
1261 gaactatagc gaactatagc gaactatagc gaactatagc gaactatagc gaactatagc gaactatagc gaactatagc
1321 gaaagcgat gtggagatgt aagggtgga aagggtgga aagggtgga aagggtgga aagggtgga aagggtgga
1381 cactcttgg cactcttgg cactcttgg cactcttgg cactcttgg cactcttgg cactcttgg cactcttgg
1441 ggggcttttg ggggcttttg ggggcttttg ggggcttttg ggggcttttg ggggcttttg ggggcttttg ggggcttttg
1501 cctgcttttc cctgcttttc cctgcttttc cctgcttttc cctgcttttc cctgcttttc cctgcttttc cctgcttttc
1561 caaggatagc tatctgggac tatctgggac tatctgggac tatctgggac tatctgggac tatctgggac tatctgggac
1621 ttgcccctta ttgcccctta ttgcccctta ttgcccctta ttgcccctta ttgcccctta ttgcccctta ttgcccctta
1681 agacaaggac tgagattgcc tgagattgcc tgagattgcc tgagattgcc tgagattgcc tgagattgcc tgagattgcc
1741 ccttgcttcc ccttgcttcc ccttgcttcc ccttgcttcc ccttgcttcc ccttgcttcc ccttgcttcc ccttgcttcc
1801 ctgaatccca gatgatggga gatgatggga gatgatggga gatgatggga gatgatggga gatgatggga gatgatggga
1861 ctctcacttt ctctcacttt ctctcacttt ctctcacttt ctctcacttt ctctcacttt ctctcacttt ctctcacttt
1921 attttttgta cctttgatgg tttagcggcc gcgc (SEQ ID NO:6)

FIG. 3B

MLAMKHQQELLEHQKLERHRQEQELEKQHREQKLQQLKNKEKG
KESAVASTEVMKMLQEFVLNKKKALAHPNLNHCISSCPRYWYGKTQHSSLDQSSPPQS
GVSTSYNHPVLGMYDAKDDFPLRKTASEP NLKLSRLKQKVAERRSSPLLRRKDGPFVV
TALKKRPLDVTD SACSPGSGPSSPNNSSGSVSAENGIAPAVPSIPAETSLAHLVA
REGSAAPLPLYTSPSLPNI TLGLPATGPSAGTAGQQDTERLTLPALQQRLSLFPGTHL
TPYLSTSPLERDGGAAHSP LLQH MV LLEQPPAQAPLV TGLGALPLHAQSLVGADRVS P
SIHKL RQHRPLGRTQSAPLPQNAQALQHLV IQQQHQQFLEKHKQQFQQQLQMNKIIP
KPSEPARQPESHPEETEEELREHQALLDEPYLDRLPGQKEAHAQAGVQVKQEP IESDE
EEAEPPREVEPGQRQPS EQELLFRQQALLLEQQRIHQLRNYQASMEAAGIPVSFGGHR
PLSRAQSSPASATFPVSVQEPPTKPRFTTGLVYDTLMLKHQCTCGSSSSHPEHAGRIQ
SIWSRLQETGLRGKCECIRGRKATLEELQTVHSEAHTLLYG TNPLNRQKLD SKKLLGS
LASVFVRLPCGGVGVDSDTIWNEVHSAGAARLA VGCVVELVFKVATGELKNGFAVVRP
PGHHAEESTPMGFCYFNSVA AAKLLQQR LSVSKILLVDWDVHHGNGTQQAFYS DPSV
LYMSLHRYDDGNFFPGSGAPDEVGTGPGVGFNVNMAFTGGLDPPMGDAEYLA AFRTVV
MPIASEFAPDVVLASSGFDAVEGHPTPLGGYNLSARCFGYLTKQLMGLAGGRIVL ALE
GGHDLTAICDASEACVS ALLGNELDPLPEKVLQQRPNANAVRSM EKVM EIH SKYWRCL
QRTTSTAGRSLIEAQTCENEEAE TVTAMASLSVGVKPAEKRPDEEPMEEEPPL (SEQ ID NO:7)

FIG. 4A

FIG. 4B-1
FIG. 4B-2
FIG. 4B-3
FIG. 4B-4
FIG. 4B-5

FIG. 4B

1 ggagqttgtg gggccgccgc gcgggagcac cgtccccgcc gccgcccgag cccgagcccg
61 agcccgcgca cccgcccgcg ccgcccgcgc cgcggcccga acagcctccc agcctgggcc
121 cccggcgggc ccgtggccgc cgtccggctg gtcccgcccg tcgcccgcgc agcccagacc cgcgcgccgg
181 cgggtggcgg cgcaggctga cgcaggcgg ggagatgcgg cgcggagcgc cggagcaggg ctagagccgg
241 ccgccgccgc ccgccgcgt ccgccgcgt aagcgcagcc ccggcccggc gcccgccggc cattgtccgc
301 cgcgccgccc gcgccccgcg cagcctgcag gccttgagc ccgcggcagg ccgcggcagg tggacgccgc
361 cggtccacac ccgccccgcg ccgccccgcg cgcggccgtg ggaggcgggg gccagcgtg gccgcgcgcc
421 gtgggacccg ccggtcccca ccggtcccca ggcccgcccg gggccgcccg gacctttcca cccgcgccgc
491 gaggcggcct ccgccgcccg gcggggggcg cgggggtggg cagggtcatc tgcagaagcc agcggacgcc
541 tctcccgtg tctgttcaac cggggcccgc cggggcccgc caggttcatc tgcagaagcc agcggacgcc
601 tctgttcaac ttgtgggcta cctgggctcat gagacctgc cggcgaggct cggcgcttga
661 acgtctgtga ccagccctc accgtcccgg tacttgtatg tggtggcggg agtttgagc
721 tcgttgagc tatcgtttcc gtggaattt tgagccatt cgaatcactt aaaggagtgg
781 acattgctag caatgagct caaagccat ccagatggac ttcttggccg agaccagcca
841 gtggagctgc tgaatcccgc ccgcgtgaac cacatgcca gcacggtgga tgtggccacg
901 gcgctgcctc tgcaagtggc cccccggc gegccatgg acccgccct ggaccaccag
961 ttctcactgc ctgtggcaga gccggccctg cgggagcagc agctgcagca ggagctcctg

FIG. 4B-1

11021	gcgctcaagc	agaagcagca	gatccagagg	cagatcctca	tcgccgagtt	ccagagggcag
11081	cacgagcagc	tctcccggca	gcacgaggcg	cagctccacg	agcacatcaa	gcaataacag
11141	gagatgctgg	ccatgaagca	ccagcaggag	ctgctggaac	accagcggaa	gctggagagg
11201	caccgccagg	agcaggagct	ggagaagcag	caccgggagc	agaagctgca	gcagctcaag
11261	aacaaggaga	agggcaaaag	gagtgccgtg	gccagcacag	aagtgaagat	gaagtataaa
11321	gaatttgtcc	tcaataaaaa	gaaggcgctg	gccaccgga	atctgaacca	ctgcacttcc
11381	agagaccctc	gctactggta	cgggaaaaacg	cagcacagtt	cccttgacca	gagttctcca
11441	cccagagcg	gagtgtcgac	ctcctataac	cacccgggtcc	tgggaatgta	cgacgccaaa
11501	gatgacttcc	ctcttaggaa	aacagcttct	gaaccgaatc	tgaaatcacg	gtccaggcta
11561	aagcagaaag	tggccgaaag	acggagcagc	cccctgttac	gcaggaaaga	cgggccagtg
11621	gtcactgctc	taaaaaagcg	tccgttggat	gtcacagact	cgcggtgcag	cagcgcacca
11681	ggctccggac	ccagctcacc	caacaacagc	tccgggagcg	tgcggtggag	gaacgggtatc
11741	gcgcccgcgg	tcccagcat	cccggcggag	acgagtttgg	cgcacagact	tgtggcacga
11801	gaaggctcgg	ccgctccact	tcccctctac	acatcgccat	ccttgcccaa	catcacgctg
11861	ggcctgcctg	ccaccggccc	ctctgcgggc	acggcgggcc	agcaggacac	cgagagactc
11921	acccttcccg	ccctccagca	gaggctctcc	cttttcccgg	gcaccacact	cactccctac
11981	ctgagcacct	cgcccttgga	gcgggacgga	ggggcagcgc	acagccctct	tctgcagcac
12041	atggtcttac	tggagcagcc	accggcacia	gcacccctcg	tcacaggcct	gggagtactg
12101	cccctccacg	cacagtccct	ggttggtgca	gaccgggtgt	ccccctccat	ccacaagctg
12161	cggcagcacc	gccactggg	gcggacccag	tcggcccccg	tgccccagaa	cggccaggct
12221	ctgcagcacc	tggtcatcca	gcagcagcat	cagcagtttc	tggagaaaca	caagcagcag
12281	tccagcagc	agcaactgca	gatgaacaag	atcatcccca	agccaagcga	gccagcccgg
12341	cagccggaga	gccacccgga	ggagacggag	gaggagctcc	gtgagcacca	ggctctgctg
12401	gacgagccct	acctggaccg	gctgccgggg	cagaaggagg	cgcacgcaca	ggccggcgctg
12461	cagggtgaagc	aggagcccat	tgagagcgat	gaggaagagg	cagagccccc	acgggaggtg
12521	gagccggggc	agcgccagcc	cagtgaagcag	gagctgctct	tcagacagca	agccctcctg
12581	ctggagcagc	agcggatcca	ccagctgagg	aactaccagg	cgtccatgga	ggccggccggc
12641	atccccgtgt	ccttcggcgg	ccacaggcct	ctgtccccgg	cgcagtcctc	acccgcgtct
12701	gccaccttcc	ccgtgtccgt	gcaggagccc	cccaccaagc	cgaggttcac	gacaggcctc
12761	gtgtatgaca	cgctgatgct	gaagcaccag	tgcacctgcg	ggagtagcag	cagccacccc
12821	gagcacgccg	ggaggatcca	gagcatctgg	tcccgcctgc	agaagacggg	cctccggggc

FIG. 4B-2

2881 aaatgcgagt gcatccgagg acgcaaggcc accctggaag agctacagac ggtgactcgg
2941 gaagcccaca ccctcctgta tggcacgaac cccctcaacc ggcagaaact ggacagtaag
3001 aaacttctag gctcgctcgc ccatatggaa cgaggtgcac tcggcggggcagcccgctt ggctgtgggc
3061 gacagtgaca agctgggtctt caaggtggcc acaggggagc tgaaaaatgg ctttgctgtg
3121 tgcgtggtag gtccgcccc ctggacacca tgcggaggag cagaggttga gcttgagcaa gatcctcatc
3181 gtccgcccc tccgcggccg tggcagccaa acgtgcacca tcttctacag cgaccctagc
3241 tccgcggccg gtggactggg gtccctgtag gcttctacag ctttcccagg cagcggggct
3301 gtggactggg gtccctgtag gcttctacag ctttcccagg cagcggggct
3361 gtccctgtag gcttctacag ctttcccagg cagcggggct
3421 cctgatgagg ggcctggacc cctgatgagg gcttctacag ctttcccagg cagcggggct
3481 ggcctggacc cctgatgagg gcttctacag ctttcccagg cagcggggct
3541 ccgatcgcca gaggggcacc cctgatgagg gcttctacag ctttcccagg cagcggggct
3601 gaggggcacc cctgatgagg gcttctacag ctttcccagg cagcggggct
3661 acgaagcagc cctgatgagg gcttctacag ctttcccagg cagcggggct
3721 gacctgaccg cctgatgagg gcttctacag ctttcccagg cagcggggct
3781 cttgatcctc atggagaag gcttctacag ctttcccagg cagcggggct
3841 atggagaag gcttctacag ctttcccagg cagcggggct
3901 acagcggggc cctgatgagg gcttctacag ctttcccagg cagcggggct
3961 accgcatggg cctgatgagg gcttctacag ctttcccagg cagcggggct
4021 cccatggagg cctgatgagg gcttctacag ctttcccagg cagcggggct
4081 tgtctctgtc gggctctctt cagcggggc cctgatgagg gcttctacag ctttcccagg cagcggggct
4141 gggctctctt cagcggggc cctgatgagg gcttctacag ctttcccagg cagcggggct
4201 cgcccaggcc aacacgggac agacgcccggc cagcggggc cctgatgagg gcttctacag ctttcccagg cagcggggct
4261 aacacgggac agacgcccggc cagcggggc cctgatgagg gcttctacag ctttcccagg cagcggggct
4321 tggcgggtcc tgccggaatc caaacttgat taaacttgtt agcgtgtgtg ggcggggggg atgtgagctg
4381 tgccggaatc caaacttgat taaacttgtt agcgtgtgtg ggcggggggg atgtgagctg
4441 caaacttgat taaacttgtt agcgtgtgtg ggcggggggg atgtgagctg
4501 aaccactcga ctcatcttgt tggtaaccat taaagaaaac taaagaaaac taaagaaaac taaagaaaac
4561 ggcggggcctc tggtaaccat taaagaaaac taaagaaaac taaagaaaac taaagaaaac taaagaaaac
4621 gagggacctt taaagaaaac taaagaaaac taaagaaaac taaagaaaac taaagaaaac taaagaaaac
4681 cttgagtttc taaagaaaac taaagaaaac taaagaaaac taaagaaaac taaagaaaac taaagaaaac

4741 gtggattttt gtggctgggt tttctgaagt ctgaggaaca atgccttaag aaaaaacaaa
4801 cagcaggaat cggtgggaca gtttcctgtg gccagccgag cctgggcagtg ctggcacccgc
4861 gagctggcct gacgcctcaa cctgttttg cactgggcac gcacgggcac ctcgggggccc
4921 gcccgcggt cctgttttg cctgttttg gacgcctcaa cctgttttg aatggaggta gttccaaaaa
4981 agtggcaaat cctgttttg cctgttttg gacgcctcaa cctgttttg ttaaagcaat ccaaagtgtt
5041 ctcacagtc acatagcatt cctgttttg gacgcctcaa cctgttttg gaagcatgtg gtaggcacac
5101 ttgcagtgtt acgacgga tgccttttat taaagcaag tagcatgaag tattgcttaa
5161 attttaggta taaataaata tatatatgta taatatatat tccaatgtat tccaagctaa
5221 gaaacttact tgattcttat gaaatcttga taaatatatt ataatgcatt tatagaaaaa
5281 gtatatatat atatataaaa tgaatgcaga ttgcgaaggt ccctgcaaat ggatggcttg
5341 tgaatttgct ctcaagggtc ttatggaaag ggatccctgat tgattgaaat tcatgttttc
5401 tcaagctcca gattggctag atttcagatc gccaacacat tcgccaactgg gcaactaccc
5461 tacaagttag tactttcatt ttaattattt tctaacagaa ccgctcccgt ctccaagcct
5521 tcatgcacat atgtacctaa tgagttttta tagcaaaagaa aataagcatt gttttatgaa ttttacattt
5561 ttgtatgaat tttttcacaa ttagcaatt ttccgaatgg taataatgtc taaatctttt tcctttctga
5641 ttcctcacca tttagcaatt tttagcaatt ttccgaatgg taataatgtc taaatctttt tggttttatt
5701 attcttgctt gtacattttt ttttaccttt caaaggtttt taattatttt gtcagattct attttcagaa
5761 tttgtacgat gagttttctg cagcgtacag aattgttgct agtgacacca acgatttgtt ctttcctggt
5821 agtgagagga gggaccgtag gtcttttcgg agtgacacca gggctctttt taactttcaa cactagtagt
5881 ctgtccctagg agctgtataa tttcccctcc gtggcaaggg cagggagggt tcagcattaa tgaactcat
5941 attacgaggg gtggtgtgtt tttcccctcc ttgccagatg ccggggggcag acttgagttt tccaacacc
6001 gcccgccac cctgggaggc cctgaccac atcgtcagga acgtggggct cttaccac tggggtttt
6061 gtttaactt cctgaccac gtcagcaatg catggggcac acgtggggct tgggagcctg gaaccagg
6121 ttttgagcat gtcagcaatg catggggcac acgtggggct tgggagcctg cctgaccagg acagccagtc
6181 cactgcagc cactggcca gccctggatt ggcagggag ggtatgattg ttactggtaa ctattttcc
6241 acccttgctg cctgggtgaac cctgggtgaac cagtaactga cagtcacgtt ggttcagact tgggggcaga
6301 ttactcttt agcacatgaa gccaccagt gccaccagt tcatcccaa gtgtatatg ttcggaggtt
6361 agcacatgaa gccaccagt gccaccagt tcatcccaa gtgtatatg ttcggaggtt tggtaagt
6421 agttcagaca caccgtgctc agcaggggac cagagccgag tttcgaggtt atgagtgag
6481 tacagggtag cttctgaaat taactcaaac ttttgaccaa atgagtgag agcagggcaga
6541 tcaacttggtc actgggctgc tgatggctag ctctgagaca gtggtttgag agcagggcaga

FIG. 4B-4

FIG. 4B-5

12/37

6601 acggtcttgg gacttgtttg actttcccct ccctggtggc cactcttgc tctgaagccc
6661 agattggcaa gaggagctgg tccattcccc attcatggca cagaacagtg gcagggccca
6721 gctagcaggc tcttctggcc tccttggcct catttcttgc atagccctct ggggattcctg
6781 ccacctgccc tcttaccccg ccttggttta tggggaggaa tgcattcatct cacttttttt
6841 ttttaagcag atgatgggat aacatggact gctcagtggc caggttatca gtggggggac
6901 ttaatcttaa tctcattcaa atggagacga cctctgcaaa ggcctggcag ggggagggcaa
6961 gtttcattctg tcagctcact ccagcttcac aaatgtgctg agagcattac tgtgtagcct
7021 tttctttgaa gacacactcg gctcttctcc acagcaagcg tccaggggcag atggcagagg
7081 atctgcctcg gcgtctgcag gcgggaccac gtccaggagg gtcccttcat gtgttctccc
7141 tgtgggtcct tggaccttta gcctttttct tcctttgcaa aggccttggg ggcactggct
7201 gggagtcagc aagcgagcac ttatatccc tttaggggaa accctgatga cgccactggg
7261 cctcttggcg tctgacctgc cctcgccgct tcccgccgtg ccgcagcgtg ccacgtgcc
7321 cacgcccac cagcaggcgg ctgccccgga ggccgtggcc cgctgggact ggccgcccct
7381 cccagcgtc ccagggtctt ggttctggag ggccactttg tcaagggtgt tcaagttttc
7441 ttacttctt ttgaaaatct gtttgcaagg ggaaggacca tttcgtaatg gtctgacaca
7501 aaagcaagtt tgatttttgc agcactagca atggactttg ttgcttttct ttttgatcag
7561 aacattcctt ctttactggt cacagccacg tgctcattcc attcttctt ttgtagactt
7621 tgggcccacg tgttttatgg gcattgatag atataaat atataatat aaatatatat
7681 gaatacattt ttttaagtth cctacacctg gaggttgcag gactgtacg accggcatga
7741 ctttatattg tatacagatt ttgcacgcca aactcggcag ctttggggaa gaagaaaaat
7801 gcctttctgt tcccctctca tgacatttgc agatacaaaa gatggaaatt tttctgtaaa
7861 acaaaaacctt gaaggagagg agggcgggga agtttgcgtc ttattgaact tattcttaag
7921 aaattgtact ttttatgtta agaaaaataa aaaggactac ttaaacattt gtcatattaa
7981 gaaaaaaagt ttatctagca cttgtgacat accaataata gagtttattg tatttatgtg
8041 gaaacagtgt tttagggaaa ctactcagaa ttcacagtga actgcctgtc tctctcgagt
8101 tgatttggag gaattttgtt ttgttttgtt ttgttttgtt ccttttatct cctccacgg
8161 gccaggcgag cgccgcccg cctcactggc cttgtgacgg ttatatctga ttgagaactg
8221 ggcggaactcg aaagagtccc cttttccgca cagctgtgtt gactttttaa ttacttttag
8281 gtgatgtatg gctaagattt cactttaagc agtcgtgaac tgtgcgagca ctgtggttta
8341 caattatact ttgcatcgaa aggaaaccat ttcttcatgt taacgaagct gagcgtgttc
8401 ttagctcggc ctcactttgt ctctggcatt gattaaaaagt ctgctattga aagaaaaag (SEQ ID NO:8)

LRQGGTLTGKFMSTSSIPGCLLGVALEGDGSPHGHASLLQHVL
LEQARQQSTLIAVPLHGQSPLVTGERVATSMRTVGKLP
RHRPLSRTQSSPLPQSPQAL
QQLVMQQQHQQFLEKQKQQQLQLGKILTKTGELPRQPT
THPEETEEELTEQQEVLLGE
GALTMPREGSTESESTQEDLEEEDEEEDGEEEDCIQVK
DEEGESGAEEGPDLEEPGA
GYKKLFSDAQPLQPLQVYQAPLSLATVPHQALGR
TQSSPAAPGGMKSPDQPVKHLFT
TGVVYDTFMLKHQCMCGNTHVHPEHAGRIQSIWSRL
QETGLLSKCERIRGRKATLDEI
QTVHSEYIHTLLYGTSPLNRQKLDKKLLGPISQKMYA
VLP CGGIGVDSDTVWNEMHSS
SAVRMAVGCLLELAFKVAAGELKNGFAIRPPGHAEES
TAMGFCFFNSVAITAKLLQ
QKLNVGKVLIVDWDIHHGNGTQQAFYNDPSVLYISLH
RYDNGNFFPGSGAPEEVGGGP
GVGYNVNVAWTGGVDPPIGDVEYLTAFRTVVMPIA
HEFSPDVVTLVSAGFDAVEGHLSP
LGGYSVTARCFGHLTRQLMTLAGGRVVLAL
EGGHDLT AICDASEACVSALLSVELQPL
DELVLQQKPNINAVATLEKV IETQSKHWSCVQKFAAG
LGRSLREAQAGETEEAETVSA
MALLSVGAEQAAAREHSRPAEFPMEQEPAL (SEQ ID NO:9)

FIG. 5A

FIG.5B-1
FIG. 5B-2

FIG. 5B

1 ccctgcggca gggtagcacg ctgaccggca agttcatgag cacatcctct attcctggct
61 gcctgctggg cgtggcactg gagggcgacg ggagcccca cgggcatgcc tccctgctgc
121 agcatgtgct gttgctggag caggcccggc agcagagcac cctcatctgt gtgccactcc
181 acggggcagtc cccactagtg acgggtgaac gtgtggccac cagcatgcgg acggtaggca
241 agctcccgcg gcatcggccc ctgagccgca ctcagtcctc accgctgccg cagagtcccc
301 agggccctgca gcagctggtc atgcaacaac agcaccagca gtccctggag aagcagaagc
361 agcagcagct acagctgggc aagatcctca ccaagacagg ggagctgccc aggcagccca
421 ccaccacccc tgaggagaca gaggaggagc tgacggagca gcaggaggtc ttgctggggg
481 agggagccct gaccatgccc cgggagggct ccacagagag tgagagcaca caggaagacc
541 tggaggagga ggacgaggaa gaggatgggg aggaggaga ggattgcatc caggttaagg
601 acgaggaggg cgagagtggc gctgaggagg gcccgcactt ggaggagcct ggtgctggat
661 acaaaaaact gttctcagat gcccagccgc tgcagccttt gcagggtgtac caggcgcccc
721 tcagcctggc cactgtgccc caccaggccc tgggccgtac ccagtcctcc cctgctgccc
781 ctggggggcat gaagagcccc ccagaccagg ccgtcaagca cctctcacc acaggtgtgg
841 tctacgacac gttcatgcta aagcaccagt gcatgtgcgg gaacacacac gtgcaccctg

FIG. 5B-1

901 agcatgctgg ccggatccag agcatctggt cccggctgca ggagacaggc ctgcttagca
961 agtgcgagcg gatccgaggt cgcaaaagcca cgctagatga gatccagaca gtgactctg
1021 aataccacac cctgctctac gggaccagtc cctcaaccg gcagaagcta gacagcaaga
1081 agttgctcgg ccccatcagc cagaagatgt atgctgtgct gccttgtggg ggcatacggg
1141 tggacagtga caccgtgtgg aatgagatgc actcctccag tgctgtgct atggcagtgg
1201 gctgcctgct ggagctggcc ttcaagggtg ctgcaggaga gctcaagaat ggatttgcca
1261 tcatccggcc ccaggacac catcacgca aaactcctac agcagaagtt gaacgtgggc aaggtcctca
1321 actctgtagc catcacgca aaactcctac agcagaagtt gaacgtgggc aaggtcctca
1381 tcgtggactg ggacattcac catggcaatg gcaccagca ggcgttctat aatgacccct
1441 ctgtgctcta catctctctg catcgctatg acaacgggaa cttctttcca ggctctggg
1501 ctccctgaaga ggttgggtgga ggaccaggcg tggggtacaa tgtgaacgtg gcatggacag
1561 gaggtgtgga ccccccatt ggagacgtgg agtaccttac agccttcagg acagtggta
1621 tgcccatcgc ccacgagttc tcacctgatg tggtcctagt ctccgccggg tttgatgctg
1681 ttgaaggaca tctgtctcct ctgggtggct actctgtcac cgccagatgt tttggccact
1741 tgaccaggca gctgatgacc ctggcagggg gccgggtggt gctggccctg gagggaggcc
1801 atgacttgac cgccatctgt gatgcctctg aggcttgtgt ctcggtctctg ctcagtgtag
1861 agctgcagcc cttggatgag gcagtcttgc agcaaaagcc caacatcaac gcagtggcca
1921 cgctagagaa agtcatacag atccagagca aacactggag ctgtgtgcag aagtgcg
1981 ctgggtctggg ccggtccctg cgagaggccc aagcaggatga ggccgaggag gccgagactg
2041 tgagcgccat ggccttgctg tcggtggggg ccgagcaggc ccaggctgctg gcagcccg
2101 aacacagccc caggccggca gaggagccca tggagcagga gcctgccctg tgacgcccc
2161 gcccccatcc ctctcggctt caccattgtg atttgttta tttttctat taaaaacaaa
2221 aagtcacaca ttc (SEQ ID NO:10)

FIG. 5B-2

1 mtstgqdstt trqrrsrqnp qspqsdssvt skrnikkav prsipnlaev kkkgkmlklg
 61 gameedlivg lqgmdlnlea ealagtglvl deqlnefhcl wddsfpegpe rlhaikeqli
 121 qeglldrcvs fgarfaekee lmlvhsleyi dlmettqymn egelrvladt ydsvylhpns
 181 yscacclasgs vlrlvdavlg aeirngmai rppghhaqhs lmdgycmfh vavaaryaqg
 241 khriirrvliv dwdvhhgqgt qftfdqdpv lyfsihryeq grfwphlka nwsttgfgqg
 301 qgytinvpwn qvgmrdadyi aafhlvllpv alefqpqlvl vaagfdalqg dpkgemaatp
 361 agfaqlthll mglaggklil sleggynira laegvsaslh tllgdpcpml espgapcrsa
 421 qasvscalea lepfwevlvr stetverdnm eednveesee egpweppvlp iltwpvlqsr
 481 tglvydqnmn nhcnlwdshh pevprilri morleelgia grcltitprp ateaelltch
 541 sa yvghlra tekmtrelh ressnfdsiy icpstfacaq latgaacrly eavisgevin
 601 gaavvrppgh haeqdaacgf cffnsvavaa rhaqtisgha lrilivdwdv hhngtqhmf
 661 eddpsvlyvs lhrydhgtff pmgdegassq igraagtgt vnvaungprm gdadylaawh
 721 rlvlpiafef npelvlvsag fdaargdplg gcqvspegia hlthllmgl sgrilileg
 781 gynltsises maactrsilg dppplltlpr pplsgalasi tetiqvhrry wrslrvmkve
 841 dregpsskl vtkkapqpak prlaermtrr ekkvleagmg kvtsasfgee stpgqtnset
 901 avvalcqdaq seaatggatl aqtiseaaig gamlgqttse eavggatpdq ttseetvgga
 961 ildqttseda vggatigqtt seeavggatl aqtiseaame gatldqttse eapggtelig
 1021 tplasstdhq tpptspvqgt tpqispstli gslrtlelgs esqgasesqa pgeenllgea
 1081 aggqdmadsm lmqgsrgltd qai fyavtpl pwcphlvavc pipaagldvt qpcgdcgtiq
 1141 enwvclscyq vycgryingh mlqhhgnsgh plvlsyidl awcyycqayv hhqalldvkn
 1201 iahqnkfged mphph (SEQ ID:11)

FIG. 6A

FIG. 6B-1	FIG. 6B-2	FIG. 6B-3
-----------	-----------	-----------

FIG. 6B

1 gggcagtcctc ctgaggagcg gggctggttg aaacgctagg ggcgggatct ggcggagtgg
61 aagaaccgcg gcagggggcca agcctcctca actatgacct caaccggcca ggattccacc
121 acaaccaggc agcgaagaag taggcagaac cccagtcgc cccctcagga ctccagtgtc
181 acttcgaagc gaaatatataa aaaggagcc gtccccgct ctatcccaa tctagcggag
241 gtaagaaga aaggcaaat gaagaagctc ggccaagcaa tggagaaga cctaatactg
301 ggaactgcaag ggatggatct gaacctcgag gctgaagcac tggcttgggtg
361 ttggatgagc agttaaatga attccattgc ctctgggatg acagcttccc ggaaggccct
421 gagcggctcc atgccatcaa ggagcaactg atccaggagg gcctcctaga tcgctgcgtg
481 tcctttcagg cccgggttgc tgaaaaggaa gagctgatgt tggttcacag cctagaatat

17/37

FIG. 6B-1

541 attgacctga tggaaacaac ccagtacatg aatgaggag aactccgtgt ctagcagac
601 acccacgact cagtttatct gcatccgaac tcatactcct gtgcctgcct ggcctcaggc
661 tctgtcctca ggctgggtgga tgcggtcctg ggggctgaga tccggaacgg catggccatc
721 attaggcctc ctggacatca cgccagcac agtcttatgg atggctattg catgttcaac
781 cacgtggctg tggcagcccg ctatgctcaa cagaaacacc gcaccggag ggtccttacc
841 gtagattggg atgtgcacca cggtcaagga acacagttca ccttcgacca ggaccccagt
901 gtcctctatt tctccatcca ccgtacgag cagggtaggt tctggcccca cctgaaggcc
961 tctaactggt ccaccacagg tttcggccaa ggccaaggat ataccatcaa tgtgccttgg
1021 aaccagggtg ggatgcggga tgctgactac attgctgctt tcctgcacgt cctgctgcca
1081 gtcgccctcg agctccagcc tcagctggtc ctggaggcgg ctggatttga tgccctgcaa
1141 ggggaccca agggcgagat ggccgacct cggcagggt tcgccagct aaccacctg
1201 ctcatgggtc tggcaggagg caagctgac ctgtctctgg agggaggcta caacctccgc
1261 gccctggctg aaggcgtcag tgcttcgctc cacaccctc tgggagacct ttgcccctg
1321 cggagtcac ctggtgcccc ctgccggag gccaggctt cagtttcctg tgctctggaa
1381 gcccttgagc cctcttgga ggttcttgtg agatcaactg agaccgtgga cctgtgtctc
1441 atggaggagg acaatgtaga ggagagcgag gaggaaggac cctgggagcc ccctgtgtc
1501 ccaatcctga calggccagt gctacagtct cgacacaggc tggctctatga ccaaatatg
1561 atgaatcact gcaacttgtg ggacagccac caccctgagg taccacacct gacaccgcg
1621 atcatgtgcc gtctggagga gctgggcctt gccgggcgt gcctcacct agtacgtggg
1681 cctgccacag aggtgagct gctcacctgt cacagtgtg agtacgtggg gtccaact
1741 gccacagaga aatgaaaac ccgggagctg caccgtgaga gtccaact tgaactccatc
1801 tatactgcc ccagtacct tgctctcagg agaggctcctg cagcttgcca ctggcgctg
1861 gtggaggctg tgctctcagg agaggctcctg aatggtgctg ctgtgggtgctg tccccagga
1921 caccacgcag agcaggatgc agcttgcggt tttigctttt tcaactctgt ggctgtggct
1981 gctcgccatg ccagactat cagtgggcat gccctacgga tcctgattgt ggattgggat
2041 gtccaccacg gtaatggaa tcagcacatg tttgaggatg acccagtg gctatatgtg
2101 tccctgcacc gctatgatca tggcacctc tccccatgg gggatgaggg tggcagcagc
2161 cagatcggcc gggccgcggg cacaggctc accgtcaacg tggcatggaa cgggccccgc
2221 atgggtgatg ctgactacct agctgcctgg catcgcctgg tgcttcccat tgcctacgag
2281 ttaaccag aactggtgct ggtctcagct ggctttgatg ctgcacgggg ggatccgctg

2341 gggggctgcc aggtgtcacc tgagggttat gccacctca ccacctgct gatggcctt
2401 gccagtggcc gcattatcct taccctagag ggtggctata acctgacatc catctcagag
2461 tccatggctg cctgcactcg cctccctcctt ctccctcctt ggagaccac caccctgct gaccctgcc
2521 cggccccac tatcagggc gcttacgggt catgaaggca atcactgaga ccatccaagt ccatcgcaga
2581 tactggcgca agaaggcacc ccaaccagcc aaacctaggt tagctgagcg gatgaccaca
2641 ttggtcacca aggttctgga agcaggcatg acagctgtgg tggccctcac tcaggaccag
2701 cgagaaaaga aggttctgga agcaggcatg aaacctaggt tagctgagcg gatgaccaca
2761 gagtccactc cagccacagg gggagccact ctggcccaga acagctgtgg tggccctcac tcaggaccag
2821 ccctcagagg cagccacagg gggagccact ctggcccaga acagctgtgg tggccctcac tcaggaccag
2881 gggggagcca tgctgggcca cagccacagg gggagccact ctggcccaga acagctgtgg tggccctcac tcaggaccag
2941 cagaccacct cagaggagac tggtgggaga gggagggctg gggagggctg ccatctctga ggcagccatt
3001 gctgttgggg gagccacgct gggccagact acctcagagg aggtgtagg aggtgctaca
3061 ctggcccaga ccatctcgga ggcagccatg gagggagcca cactggacca cactggacca cactggacca
3121 gaggaggctc cagggggcac cgagctgac cgagctgac cgagctgac cgagctgac cgagctgac
3181 cagacccccc caacctcacc tggtcaggga actacacccc aggtgggctc aggtgggctc aggtgggctc
3241 attgggagtc tcaggacctt ggagctaggc agcgaacctc aggtgggctc aggtgggctc aggtgggctc
3301 gcccaggag agggaaacct accaggagag gcagctggag gtcaggacat ggctgattcg
3361 atgctgacgc agggatctag gggcctcact gatcaggcca tattttatgc tgtgacacca
3421 ctgccctggt gtcccattc ggtggcagta tgcccatac ctgcagcagg ggtgtgtct ctcttgctat
3481 acccaacctt gtggggactg tggaacaatc caagagaact ggtgtgtct aacttctgga
3541 caggctctacc gtggtcgtta catcaatggc cacatgctcc gttactactg tcaggcctat
3601 caccgcctgg aggtctctct agatgtgaag aacatcgccc accagaaca gtttggggag
3661 gtccaccacc acccaccta aggtctctct agatgtgaag aacatcgccc accagaaca gtttggggag
3721 gatagaccag ttccagcctg aggtctctct agatgtgaag aacatcgccc accagaaca gtttggggag
3781 gatagaccag ttccagcctg aggtctctct agatgtgaag aacatcgccc accagaaca gtttggggag
3841 atcccatcct gaatatcctt tgcaactccc caagagtgt tacttaagt ttaatacttt
3901 taagagaact gcgacgatta attgtggatc tcccctgccc catcgcccgc ttgaggggca
3961 ccactactcc agcccagaag gaaagggggg cagctcagtg gcccagaag ggagccgata
4021 tcatgaggat aacattggcg ggaggggagt taactggcag gcatggcaag gttgcatatg
4081 taataaagta caagctgtt (SEQ ID NO: 12)

FIG. 6B-3

1 mdlrvgqrpp vepppeptll alqrpqrllh hlflaglqqq rsvepmrlsm dtpmpelqvq
61 pqeqlrqll hkdkskrsav assvbkqla evilkqqaa lertvhpnsip gipyrtlepi
121 etegatrsmll ssflppvpsi psdppehfp1 rktvsepnlk lrykpkksle rrknp1lrke
181 sappslrrrp aetlgdssps ssstpasgcs spndsehgnp pilgdsdrtr hptlgprgpi
241 lgsph1p1fl phglepeagg clpsrlqp1l 1ldpsgshap 1ltvpglgp1 pfhfaqsimt
301 terlsgsgh wplsrtrsep lppsatappp pggmqprleq lkthvqv1kr sakpsekp1r
361 rqip1saedle tdgggpggvv ddglehrelg hgqpeargpa plqqh1pv1i weqqlagr1
421 prgstgdcvi lplaqqghrp hqcscgdn1r hpehagriqs iwsrlqerg1 rsqceclrgr kasieelqsv
481 gliydsvmlk tnp1sr1kl1d kvasrelkng favvrppghh adhstamgfc ffnsvaiacr qlqqqskask
541 hs rhv1lyg aagsvt1laf vhhgngtqqt fyqdp1svlyi slhrhddgnf fpgsgavdev gagsgegfnv
601 askilivdwd pmgdpeylaa frivvmpiar efs1pdlv1vs agfdaaeghp aplggyhvsa
661 nvawaggldp mnlaggavv1 alegghd1ta icdaseacva allgnrvdp1 seegwkqkpq
721 kcfgymtqq1 dpgaq (SEQ ID NO:13)
781 pqchp1sggr
841

FIG. 7A

FIG. 7B-1
FIG. 7B-2

FIG. 7B

21/37

1 ataataccta ccttgaggga ccacgacagg attaagttag gaaaacccc catgagagtg
61 ttttgccatt gtcaagttag cctgagggag gctgagggg gatcaggctg tatcatgccc
121 ccgaggacaa actttccagt ttaccctgct cctcagccgc agcccatgga gtccctaggc tgcccaggc
181 cctgagcaga cacaccaggc gccccacca gagccacat ggcctgcagc agcagcgtc cagcgcctgc
241 cccagtgga accaccacct ctccctagca ggcctgcagc gagtgccct tgctggcctc ggtggagccc atgaggctct
301 accaccacct ctccctagca ggcctgcagc gagtgccct tgctggcctc ggtggagccc atgaggctct
361 ccatggacac gccgacgccc gagtgccct tgctggcctc ggtggagccc atgaggctct
421 ttctccacaa ggacaagagc aagcgaagtg ctgtagccag tgggacccca ggaacaagag ctgaggcagc
481 tagcggaggt gattctgaaa aaacagcagg cggccctaga cggccctaga aagaacagtc catcccaaca
541 gccccggcat tccctacaga accccggagc cctggagac ccctggagac ggaaggagcc acccgctcca
601 tgctcagcag ccttccgcct cctgctccca cctgctccca gcccggccag tgacccccca gagcactccc
661 ctctgcgcaa gacagtctct gagcccaacc tgaagctgcg ccataggccc aagaagtccc
721 cggagcggag gaagaatcca ctgctccgaa aggagagtgc gcccaccagc ccccgggcgc
781 ggcccgcaga gacctcggga gactcctccc caagtagtag cagcacgccc gcatcagggt
841 gcagtcccc ccagtacagc gagcacggcc ccaatcccat cctgggagc agtgaccgca
901 ggaccatcc gactctgggc cccggggggc caatcctggg gagccccac actccccct
961 tcctgcccc tggcttggag cccgaggctg ggggcacctt ggcctccgc ctgcagccca
1021 ttctctctct ggacccctca ggctctcatg ccccgctgct gactgtgccc gggcttgggc
1081 ccttgccctt ccactttgcc cagtccttaa tgaccacga gcggctctct gggtcaggcc
1141 tccactggcc actgagccgg actcgctcag agccctgccc cccagtgcc accgctcccc
1201 caccgcccgg ccccatgcag ccccgctgg agcagctcaa aactcacgtc caggtatca
1261 agaggtcagc caagccgagt gagaagcccc ggctgcggca gataccctcg gctgaagacc
1321 tggagacaga tggcggggga ccggggcagg tggtagcga cggccggag cacagggagc

FIG. 7B-1

1381 tgggccatgg gcagcccag gccagaggcc ccgctcctct ccagcagcac cctcaggtgt
1441 tgctctggga acagcagcga ctggctgggc ggctccccc gggcagcac ggggacactg
1501 tgctgcttcc tctggcccag ggtgggcacc ggctctctgc ccgggctcag tcttcccag
1561 ccgcacctgc ctactgtca gcccagagc ctgccagcca ctgccagtc ctctccagct
1621 cagagacccc tgccaggacc ctgcccttca ccacagggct gatctatgac tcggtcatgc
1681 tgaagcacca gtgctcctgc ggtgacaaca gcaggcacc gcagcacgcc ggccgcaccc
1741 agagcatctg gtcccggctg caggagcggg ggctcggag ccagtgtgag tgtctccgag
1801 gccggaaggc ctccctggaa gagctgcagt cggccactc tgagcggcac gtgctcctct
1861 acggcaccaa ccgctcagc cgcctcaaac tggacaacgg gaagctggca gggctcctgg
1921 cacagcggat gtttgagatg ctgccctgtg gtggggttgg ggtggacact gacaccatct
1981 ggaatgagct tcattccLcc aatgcagccc gctgggccgc tggcagtgtc actgacctcg
2041 ccttcaaagt ggcttctcgt gagctaaaga atggtttcgc tgtggtgcgg ccccaggac
2101 accatgcaga tcattcaaca gccatgggct tctgcttctt caactcagtg gccatcgcct
2161 gccggcagct gcaacagcag agcaaggcca gcaaggccag caagatcctc attgtagact
2221 gggacgtgca ccatggcaac gccaccagc aaaccttcta ccaagacccc agtgtgctct
2281 acatctccct gcacgcccac gacgacggca acttcttccc ggggagtggg gctgtggatg
2341 aggtaggggc tggcagcggc gagggcttca atgtcaatgt ggctgggct ggaggtcttg
2401 acccccccac gggggatcct gagtacctgg ctgctttcag gatagtctg acgcccacgc
2461 cccgagagtt ctctccagac ctagtccctgg tgtctgccgg atttgatgct gctgagggtc
2521 acccggcccc acLgggtggc taccatgttt ctgccaaatg ttttggatac atgacgcagc
2581 aactgatgaa cctggcagga ggcgcagtgg tgctggcctt ggaggggtggc catgacctca
2641 cagccatctg tgacgcctct gaggcctgtg gaggctgctt tctgggtaac aggtggatc
2701 ccctttcaga agaaggctgg aaacagaaac cccaacctca atgccactcg ctctctggag
2761 gccgtgatcc gggtgcacag taaatactgg ggctgcatgc aggcctggc ctctgtcca
2821 gactcctggg tgcctagagt gccaggggct gacaaagaag aagtggaggc agtgaccgca
2881 ctggcgctcc tctctgtggg catcctggct gaagataggc cctcggagca gctggtggag
2941 gaggaagaac ctatgaatct ctaaggctct ggaacctctt gcccgccac catgccctg
3001 ggacctggtt ctcttctaac ccctggcaat agccccatt cctgggtctt tagagatcct
3061 gtgggcaagt agttggaacc agagaacagc ctgcctgctt tgacagttaa cccagggagc
3121 gtgagaaat c (SEQ ID NO:14)

FIG. 7B-2

1 meepeepads gqslvpvyiy speyvsmcde lakipkrasm vhsleayal hkqmriivkpk
61 vasmeematf htdaylqhlq kvsqegdddh pdsieyglgy dcpategifd yaaaiaggati
121 taaqclidgm ckvainwsgg whhakkeas gfcylndavl gilrlrrkfe rilyvdlldlh
181 hgdgvedafs ftskvmtvsl hkfspgffpg tgdvsvdvglg kgryysvnpv iqdgigqdeky
241 yqicesvlke vyqafnpkav vlqlgadtia gdpmcdfnmt pvgigkclky ilqwqlatli
301 lggggynlan tarcwtyltg vilgktsse ipdbefftay gpdvyleitp scrpdrneph
361 riqqilnyik gnlkhvv (SEQ ID NO:15)

FIG. 8A

1 gaaattcggc acgagctcgt gccgaattcg gcacgagaac ggttttaagc ggaagatgga
61 ggagccggag gaaccggcgg acagtgggca gtcgctggtc ccggtttata tctatagtcc
121 cgagtatgtc agtatgtgtg actccctggc caagatcccc aacggggcca gtatggtgca
181 ttctttgatt gaagcatatg cactgcataa gcaaatgagg atagttaagc ctaaagtggc
241 ctccatggag gagatggcca cctccacac tgatgcttat ctgcagcatc tccagaaggc
301 cagccaagag ggcgatgatg atcatccgga ctccatagaa tatgggctag gttatgactg
361 ccagccact gaagggatat ttgactatgc agcagctata ggaggggcta cgatcacagc
421 tgcccaatgc ctgattgacg gaatgtgcaa agtagcaatc aactggctctg gagggctggca
481 tcatgcaaag aaagatgaag catctgggtt tcgttatctc aatgatgctg tcctgggaat
541 attacgattg cgacggaaat ttgagcgtat tccctacgtg gattcggatc tgcaccatgg
601 agatggtgta gaagacgcat tcagtttcac ctccaaagtc atgaccgtgt ccctgcacaa
661 attctccca ggatttttcc caggaacagg tgacgtgtcc gacgttggcc tagggaaggg
721 acggtactac agtgtaaatg tgcccatcca ggatggcata caagatgaaa aatatacca
781 gatctgcgaa agtgactaa aggaagtata ccaagccttt aatcccaaag cagtggctct
841 acagctggga gccgacacaa tagctgggga tcccatgtgc tcctttaaca tgaactcagt
901 gggaattggc aagtgtctca agtacatccc tcaatggcag ttggcaacac tcatttcggg
961 aggaggaggc tataaccctg ccaacacggc tcgatgctgg acatactga ccggggtcat
1021 cctagggaaa acactatcct ctgagatccc agatcatgag tttttcacag catatggctc
1081 tgattatgtg ctggaaatca cgccaagctg ccggccagac cgcaatgagc ccaccgaat
1141 ccaacaaatc ctcaactaca tcaaagggaa tctgaagcat gtggtctagt tgacagaaag
1201 agatcagggt tccagagctg aggagtgggt cctataatga agacagcgtg tttatgcaag
1261 cagtttgrgg aatttgtgac tgcaggggaa atttgaaaga aattacttcc tgaaaatttc
1321 caaggggcat caagtggcag ctggcttcct ggggtgaaga ggcaggcacc ccagagtcc
1381 caactggacc taggggaaga aggagatarc ccacatttaa agttcttatt taaaaaaca
1441 cacacacaca aatgaaattt ttaatctttg aaaattattt ttaagcgaat tggggaggg
1501 agtattttaa tcattcttaa tgaacagat cagaagctgg atgagagcag tcaccagt
1561 gtagggcagg aggcagctga caggcagggn tngggcctcn ggaccancca ngtggagccc
1621 tgggagagan ggtactgac ngcagactgg gagg (SEQ ID NO:16)

FIG. 8B

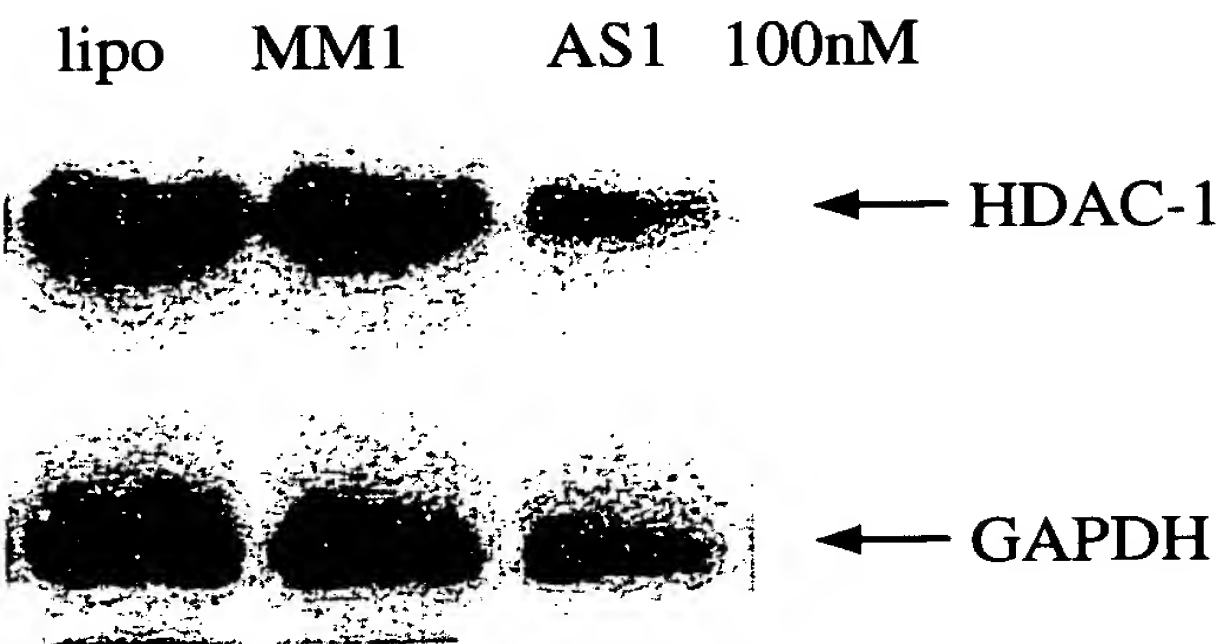


FIG. 9A

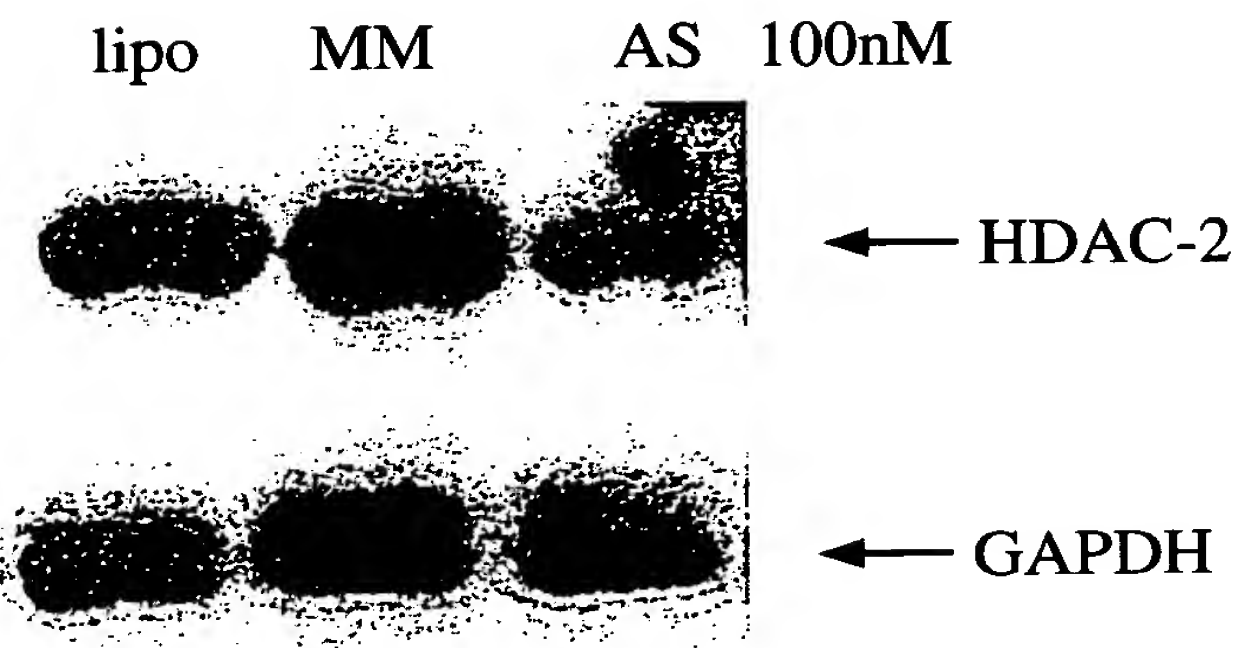


FIG. 9B

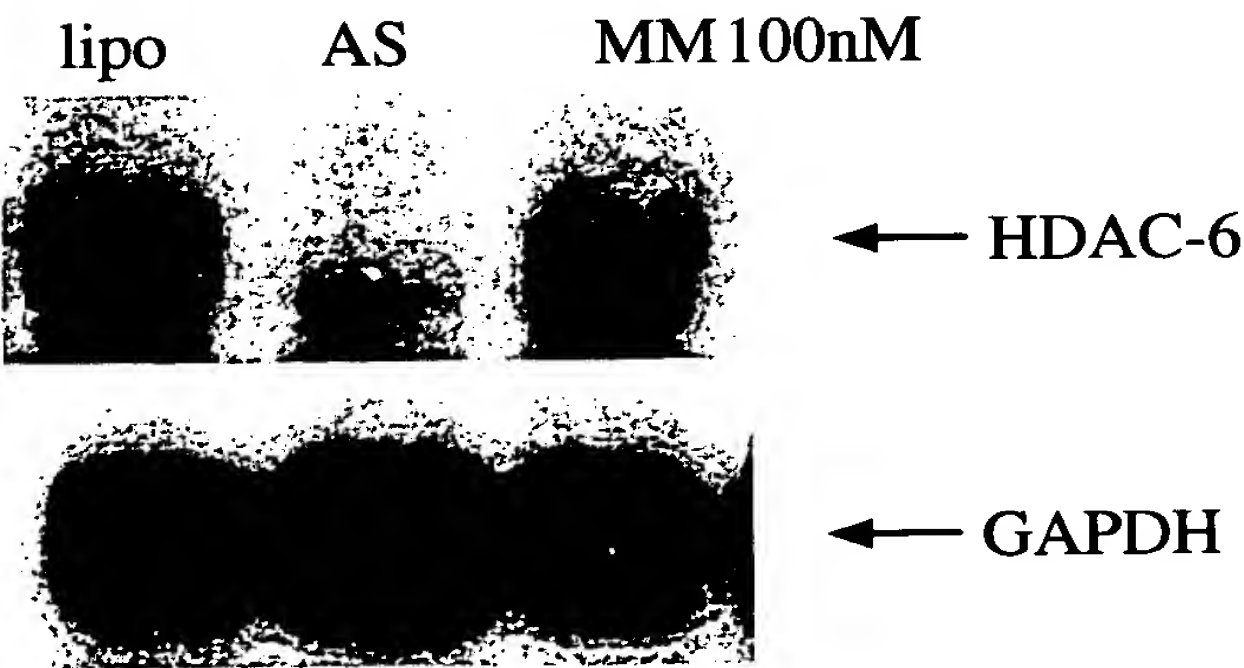


FIG. 9C

26/37

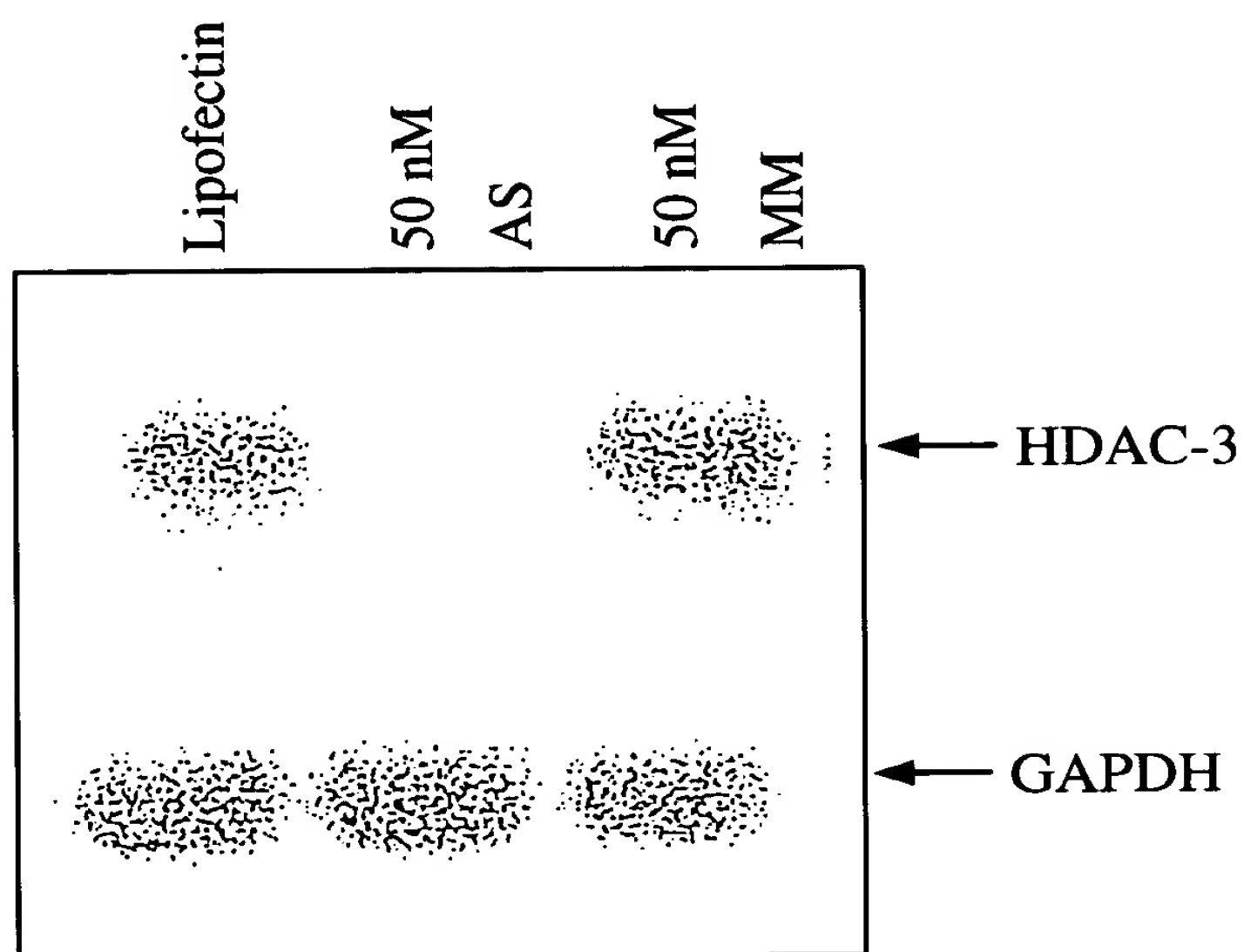


FIG. 9D

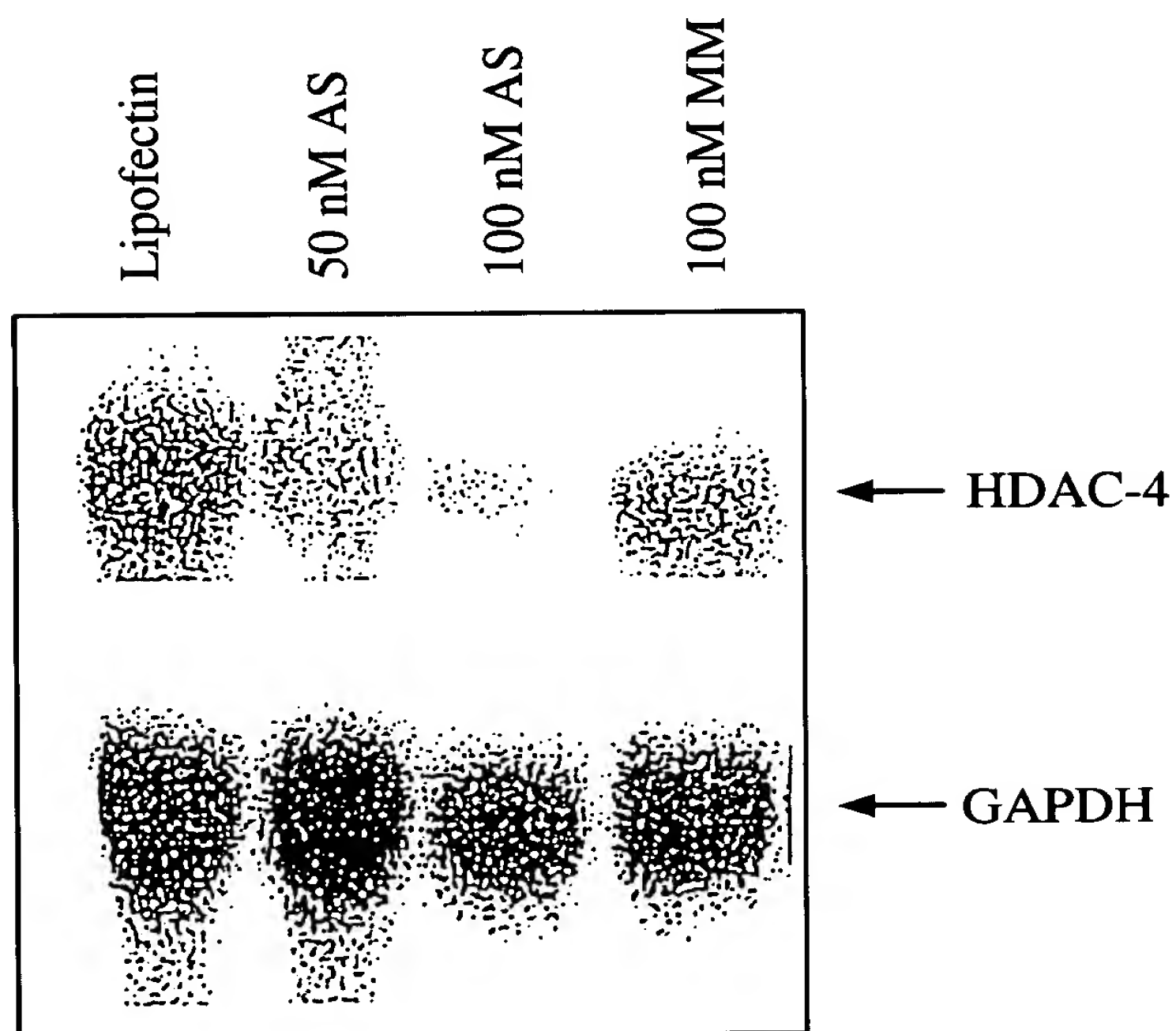


FIG. 9E

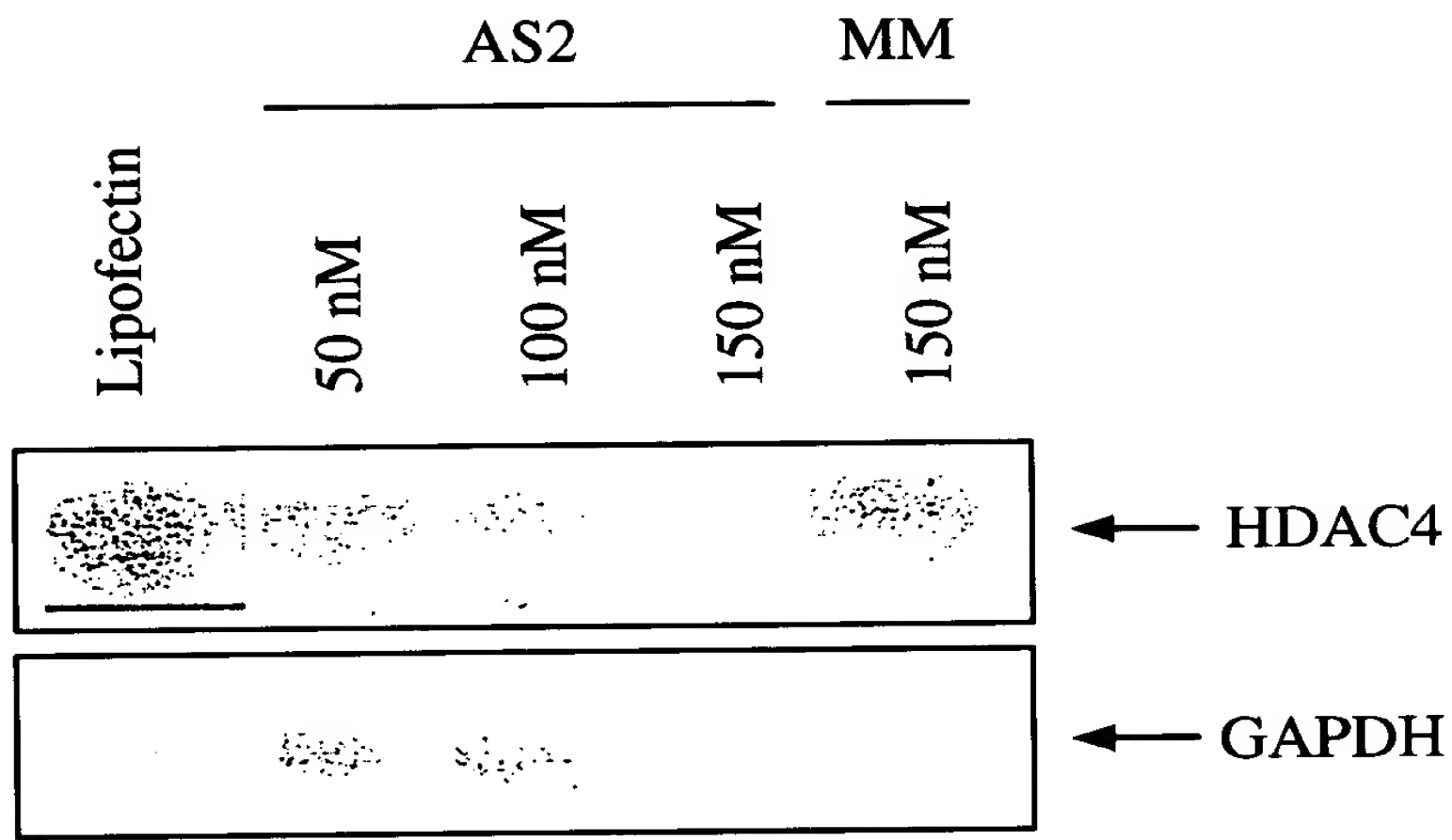


FIG. 9F

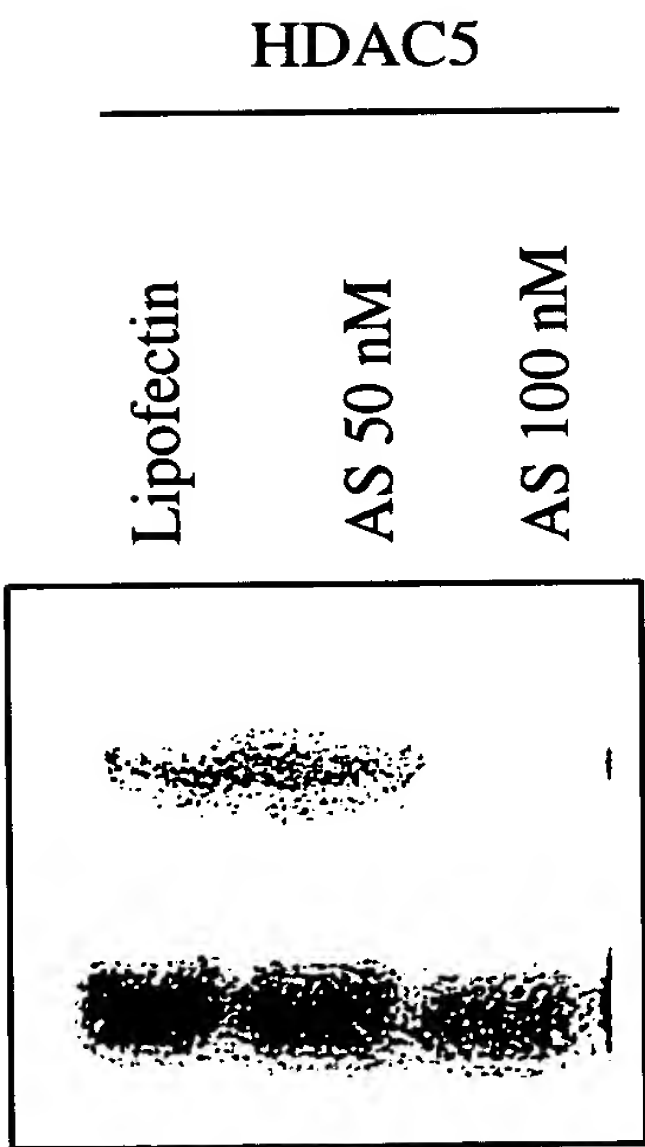


FIG. 9G

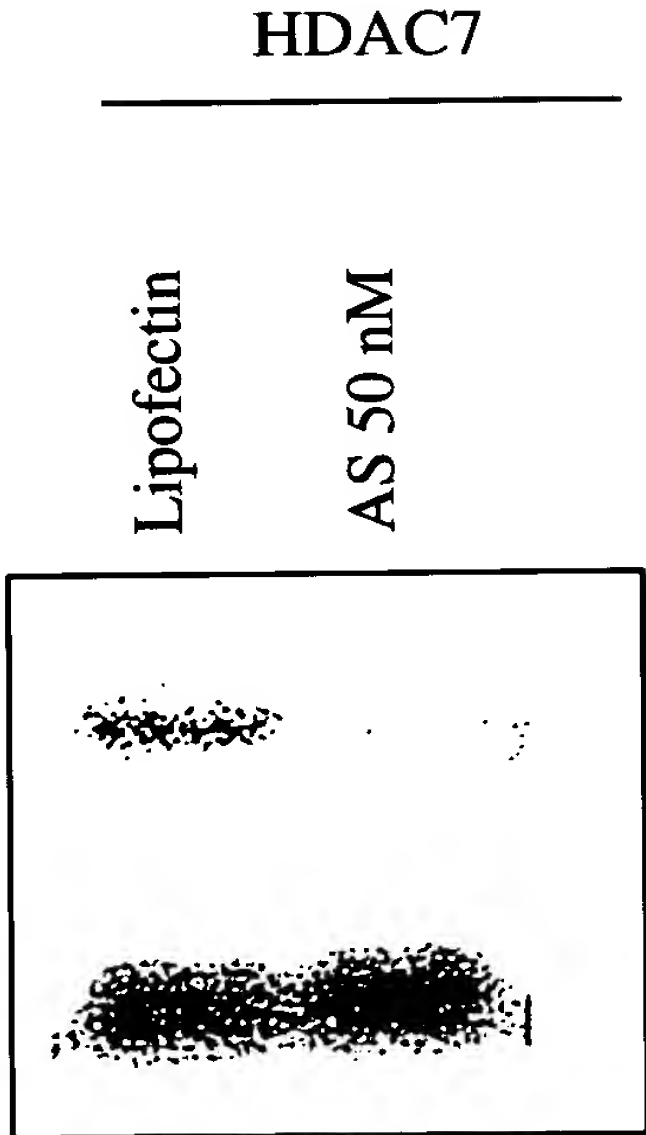


FIG. 9H

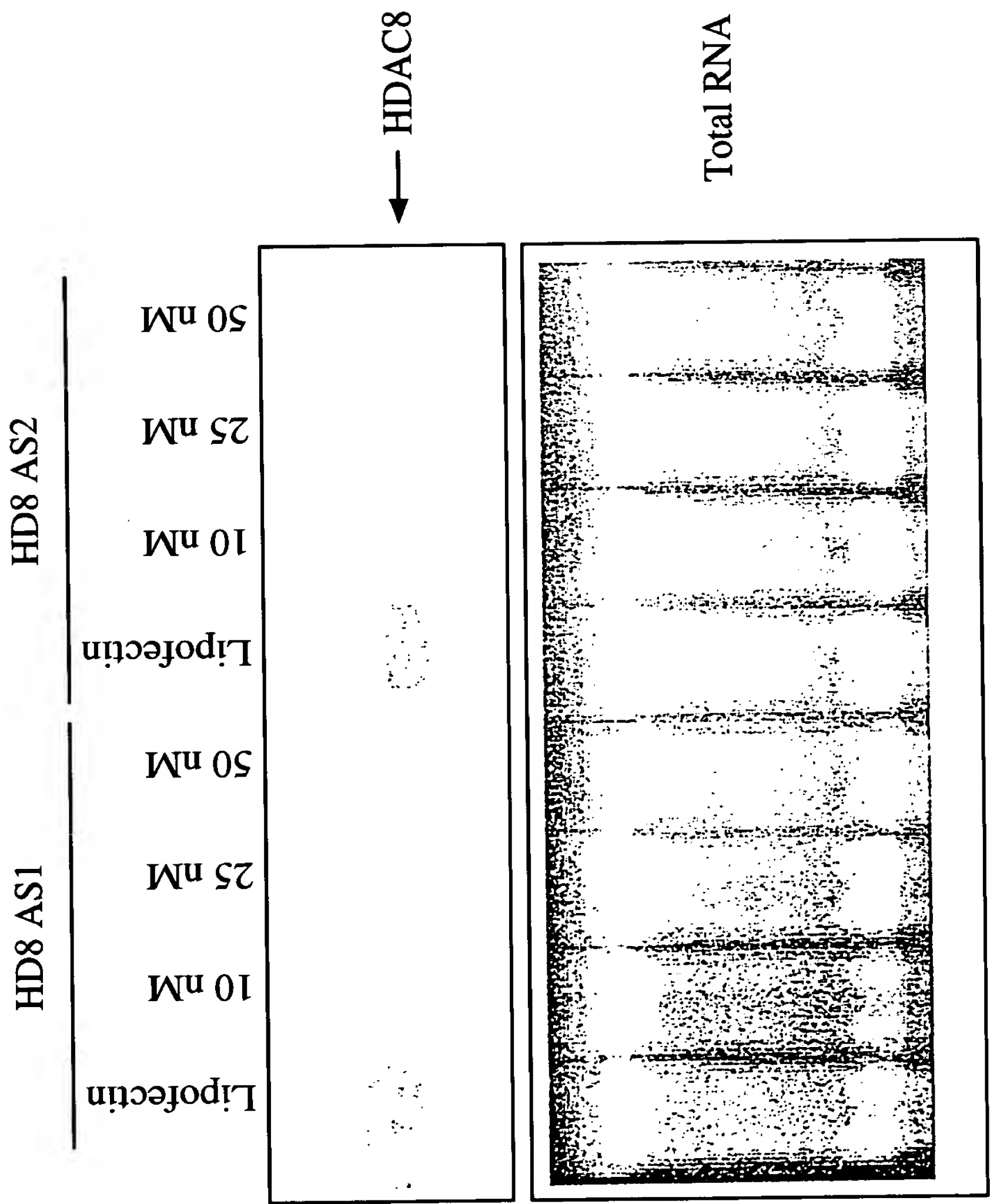
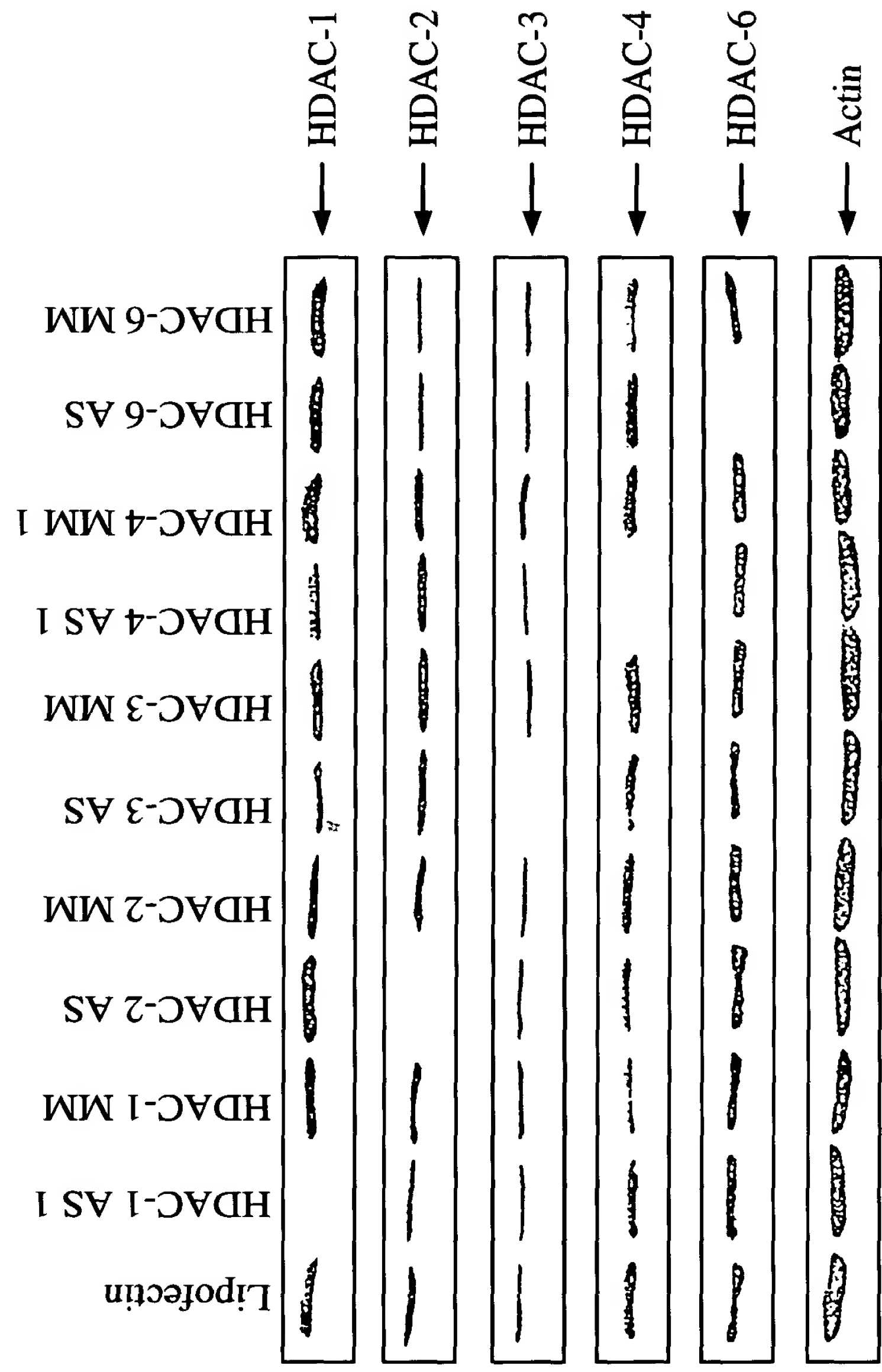


FIG. 9I



AS = Antisense
MM = Mismatch
NS = Non-specific control
3 day treatment
Oligonucleotide cone - 50nM

FIG. 10A

30/37

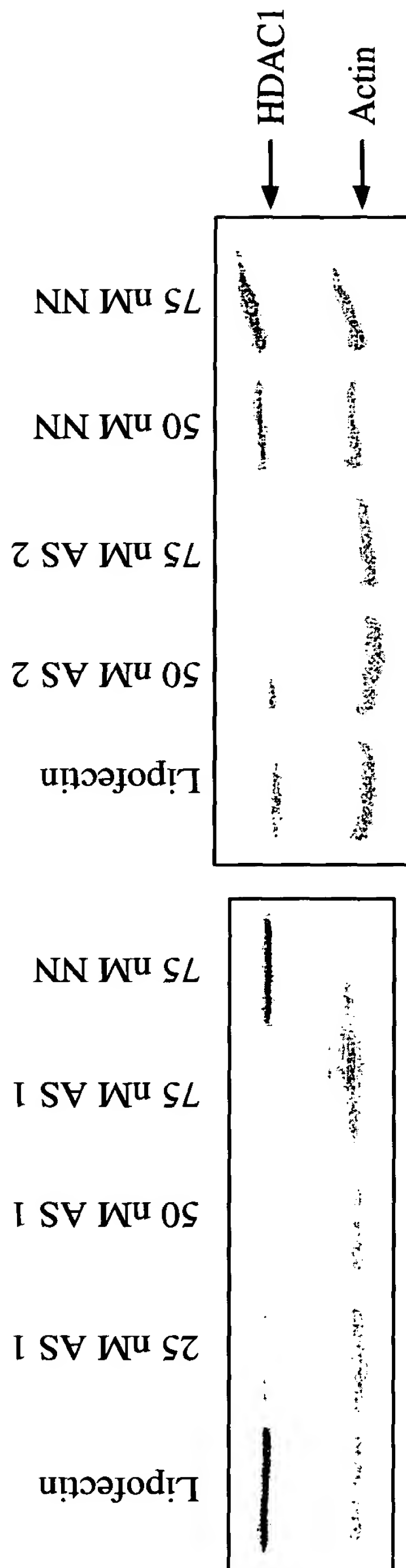


FIG. 10B

31/37

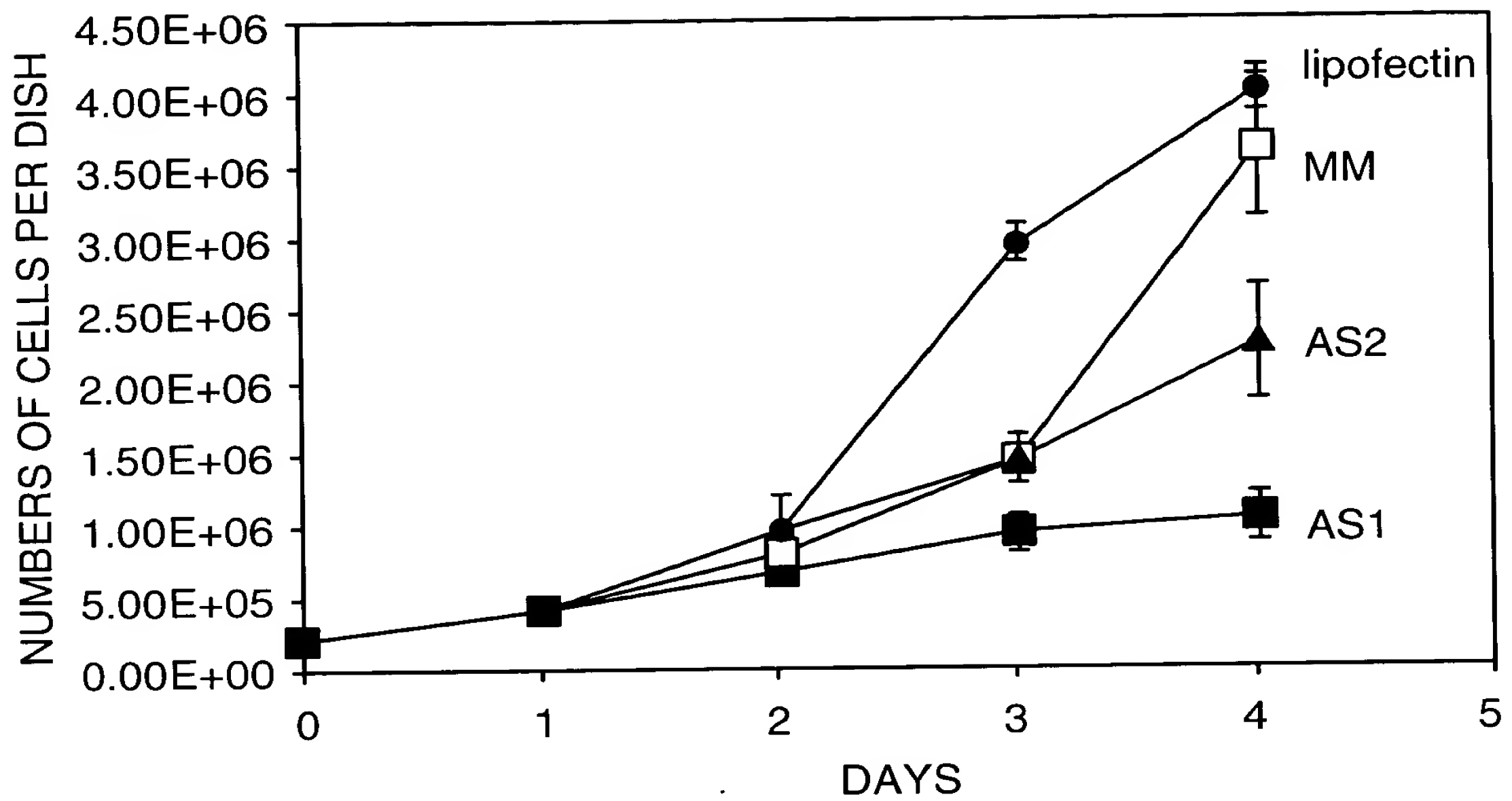


FIG. 12A

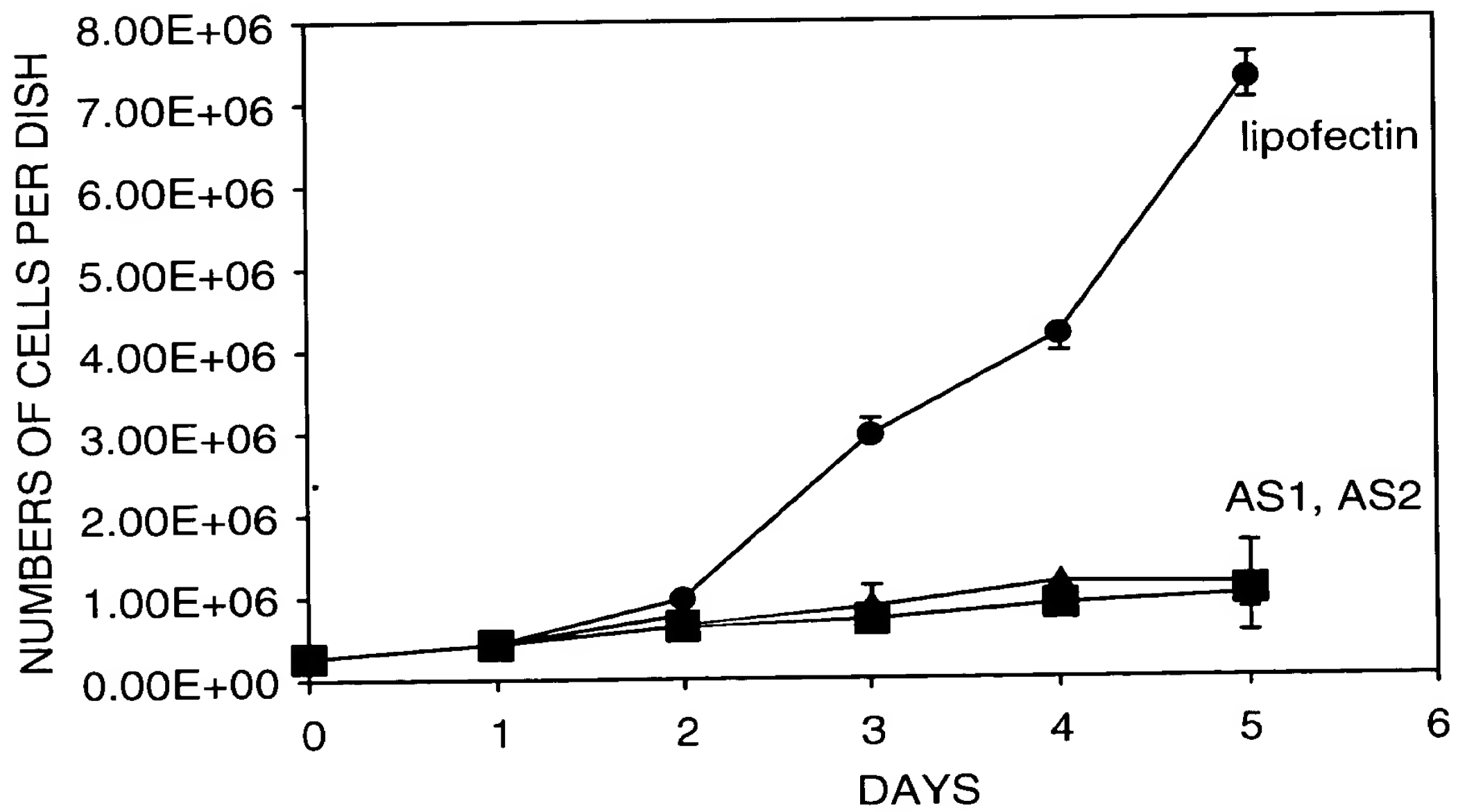


FIG. 12B

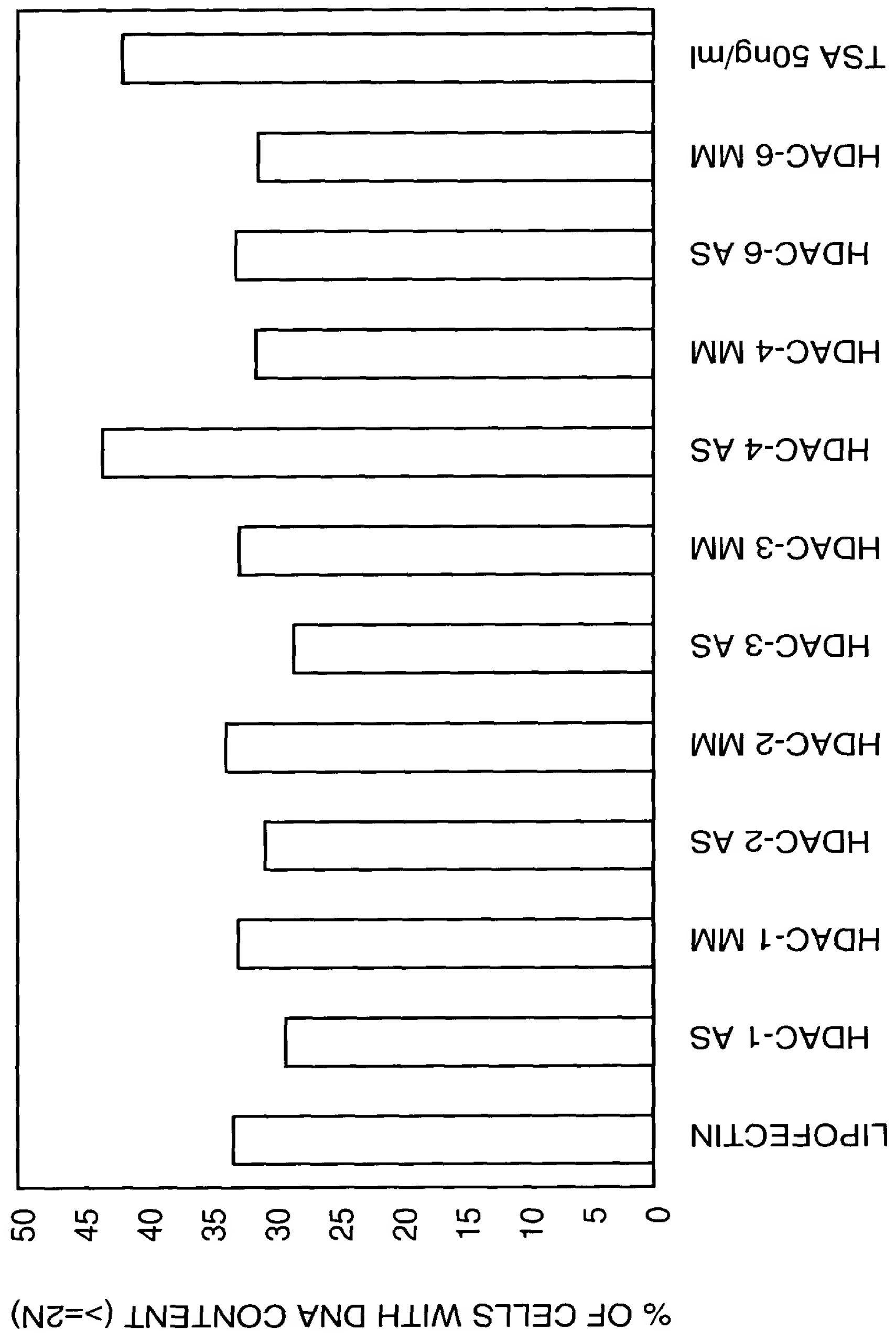


FIG. 13

100%
 90%
 80%
 70%
 60%
 50%
 40%
 30%
 20%
 10%
 0%

34/37

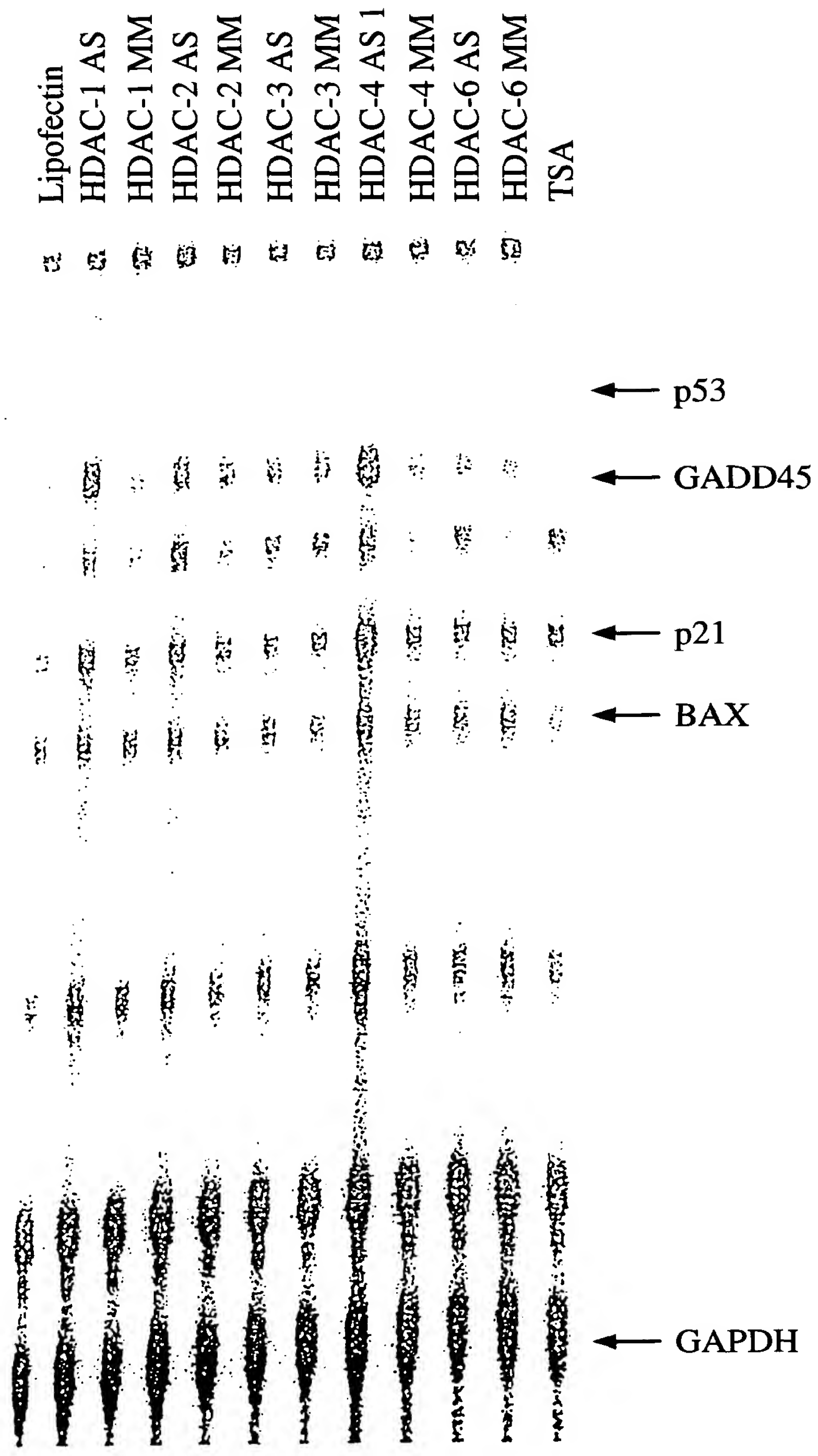


FIG. 14

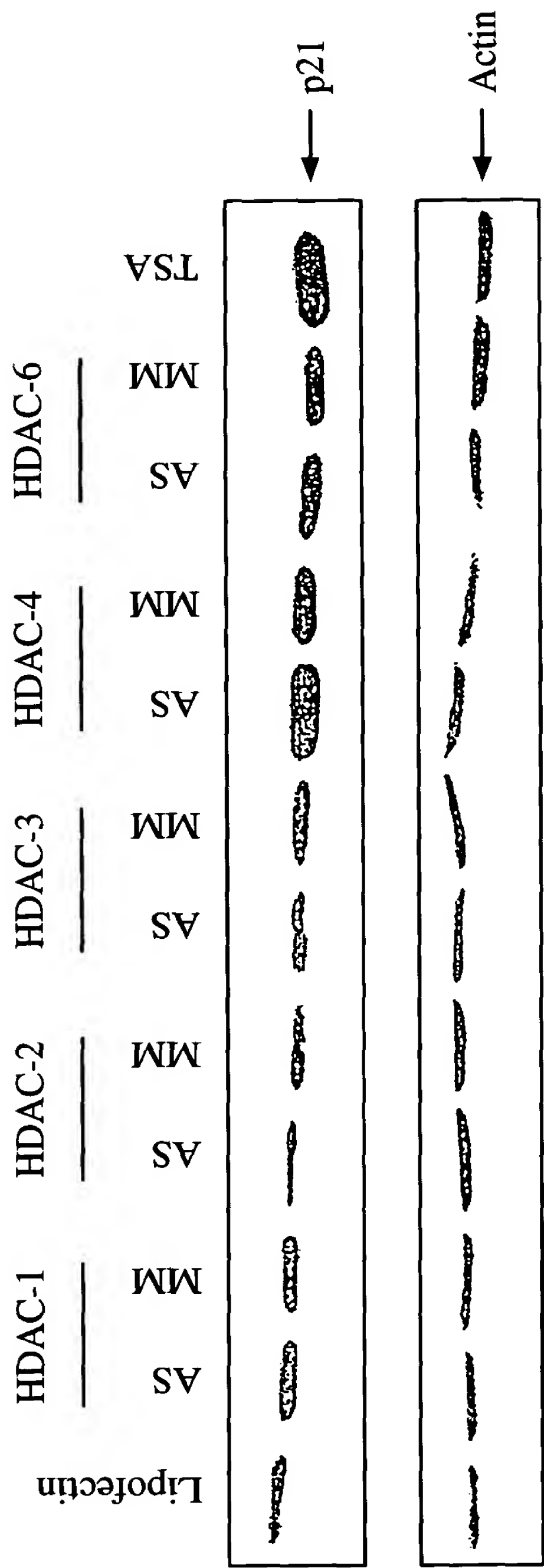


FIG. 15

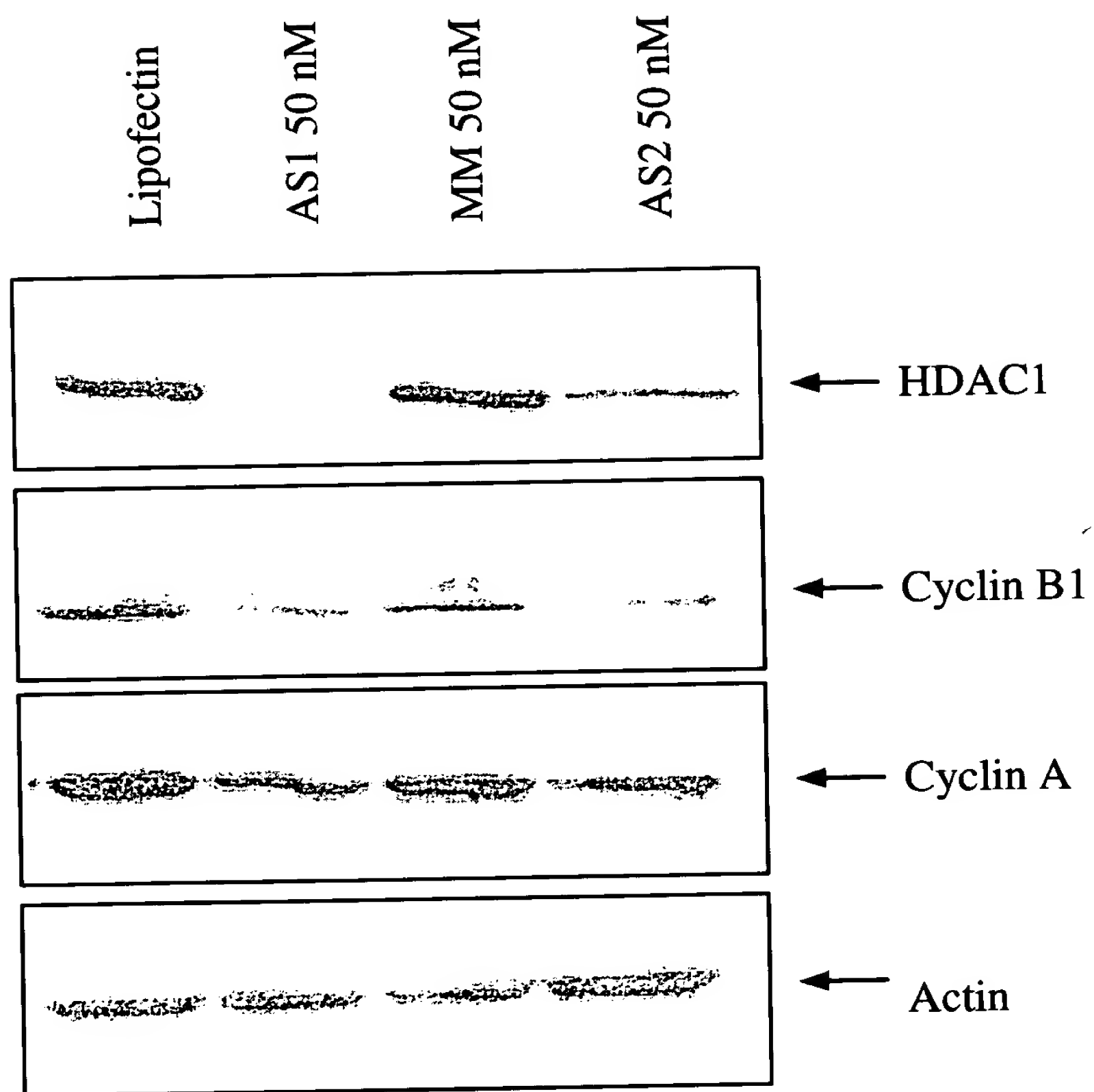


FIG. 16

US 0981753805P1



Creation date: 12-08-2003
Indexing Officer: TROBINSON - TERRI ROBINSON
Team: OIPEBackFileIndexing
Dossier: 09817538

Legal Date: 28-06-2001

No.	Doccode	Number of pages
1	PET.	3
2	DRW	37

Total number of pages: 40

Remarks:

Order of re-scan issued on